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JOURNAL**

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*Medical Insurance
and Health Conservation*

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IMMUNITY AND CONTAGION.

NATURAL IMMUNITY A RESULT OF MOLECULAR STRUCTURE—
THE PROGRESSIVE DEVELOPMENT OF CELLS AND CELLULAR
ORGANISMS FROM PRIMORDIAL PROTOPLASM, A RESULT OF
NATURAL SELECTION, ADAPTATION AND HEREDITY—ITS
BEARING UPON THE CAUSES OF ACQUIRED IMMUNITY.

BY J. W. M'LAUGHLIN, M. D., AUSTIN, TEXAS.

[Continued from page 255.]

In the foregoing pages we have presented facts and arguments upon which is founded our belief that micro-organisms are the essential cause of fermentation, putrefaction and infection. We have also given the theories which have been propounded, from time to time, in explanation of the intimate nature of these processes, the reasons which have, to us, seemed sufficient for their rejection, and, finally, have submitted for your decision our phys-

ical theory. However, before judgment is rendered, it is desired that this theory be applied as a key for unlocking of other unknown, but exceedingly important problems which are intimately connected with the cause and phenomena of infection.

When it is considered that we are absolutely surrounded and enveloped in swarms of bacteria; that the food we eat, the air we breathe, and the water we drink, contain countless myriads of these organisms, it becomes necessary to explain why we are not destroyed by this vast army of microbes. To say that they are harmless because they are innocuous to man is certainly no explanation. It does not explain why some bacteria, which are harmless to man, are virulent to other animals; why some are virulent to one race of people, and perhaps, in a less degree to individuals of the same race, and not virulent to other races, with perhaps, individual exceptions. Thus, marked differences in the susceptibility of man and other animals—even of the same species—to the same bacterium are of frequent occurrence. For example, the negro races are but slightly, if at all, susceptible to yellow fever infection, which is quite virulent to the white races of people. Syphilis is quite virulent to some races, and almost unknown to other races of people. White mice are quite insusceptible to the action of glanders bacilli while these bacilli are particularly virulent to field mice. In a similar way, the white rat is almost entirely immune from anthrax bacilli whilst white mice are exceedingly susceptible to these bacteria; they are absolutely sure to yield to this infection and, consequently, form a never failing object of experiment.

These are a few of the many illustrations which could be given of the important and far reaching law of natural immunity, a law which equally applies to all living things, both animal and vegetable, from the simplest cell to the most complex and highly organized structures. The exceptions to the operations of this law constitute "susceptibility" which may also vary in degree in different races and individuals.

It is evident, therefore, that any scheme, or explanation, of immunity should be competent to give a rational explanation of this important natural law. As a matter of fact, however, out of the many theories which have been heretofore advanced, but one attempts such an explanation, and in this case, the explanation itself requires to be explained. I refer to what is known as the theory of phagocytosis which will receive adequate attention further on.

A study of the problem of natural immunity requires the consideration of two factors: the first shall be aggressive in its habits, and would have the power to invade the body and therein elaborate its poisonous products which produce the specific types of disease. The other factor would be that condition of the tissues of the body whereby they are able to resist the invaders, or destroy them, or prevent the formation of their poisonous products should they succeed in gaining entrance into the body. The first factor is the pathogenic bacterium,—which we have already considered,—the second factor is the natural resisting power of the tissues of the body.

The truth of this statement will hardly be questioned, but does it furnish an intelligible explanation of immunity? A knowledge of the fact that the tissues of the body, in some way, resist invasions of pathogenic bacteria does not carry with it information how they do this, and yet, until this is known there can be no scientific knowledge of the causes of immunity. Unfortunately, authors, in discussing this and other occult medical questions, are too prone to use convenient expressions—like the above—to explain unknown phenomena; such expressions are convenient because they serve to explain unknown phenomena by ascribing their cause to other unknown phenomena. The following quotation shows the trend of medical opinion on the question of immunity and illustrates the tendency above referred to:

"We have seen that, in the case of a large number of diseases of this class, inheritance, whether we take it more broadly in the race, or more particularly in the family, has an undoubted, and frequently a very great, influence on the susceptibility to infection. This varying degree of susceptibility exists in the cases of diseases which are demonstrably due to a micro-organism which is pathogenic in the individuals of one race to a high degree, and is non-pathogenic, or nearly so, in individuals of another race. Recurring to our remarks on the general principles of inheritance, it seems necessary to refer to this difference in susceptibility to fine differences in the structure and activity of the tissues. We have seen that the differences in the races depend on variation in the details of their tissues."—*Dr. Joseph Coates, Lancet, 1888.*

What are the fine differences in the structure and activity of the tissue to which Professor Coates refers, but fails to explain? and how do these differences in the structure and activities of the tissues give immunity?

In giving the answers which the "Physical Theory" makes to these questions, and which it is believed, will be found both intelligible and rational we desire to state our belief that the chief difficulties which stand in the way of a correct knowledge of immunity are the obscure vitalistic conceptions which are entertained regarding the physical forces of the body, it is customary to speak of these as "vital forces" in such manner as to lead one to believe that they differ from, and are not correlated to, the physical and chemical forces outside the body; that in "vitality" and "vital force" we have an unknown entity which presides over living matter. Therefore, when these terms are used in this sense, it is to express an unknown process; for example, if we say that the "activities of the tissues," to which Professor Coates justly attributes so much importance in resisting infection, result from their vital force, as usually understood, then immunity must necessarily be an unknown process, caused by an unknowable force and is, therefore, placed beyond the limit of human investigation. It is not, however, in this light that we propose to view it. The vital force concerned is regarded as transformed physical force, subject to the same laws of transmutation and correlation that govern physical force wherever found. It has already been stated that all living matter, both animal and vegetable, is made up of cells, consequently the tissues of the body are composed of specialized cells, which are arranged in definite order, and further, that all cells, both vegetable and animal, are built up of molecules which are grouped and arranged in orders definite to different kinds of cells. When, now, we regard the tissues as orderly aggregations of specialized cells; and further, regard the cells as molecular machines, and cell structure as depending upon molecular construction and groupings, we have considerably simplified the subject of inquiry, tissue structure, and placed it in position where further investigation will reveal the fine differences and activities referred to.

In looking back, with our mind's eye, through the vista of time, there will be reached a period in the history of creation when cells were first formed, and it is not unreasonable to believe that anterior to this period, there existed a structureless, formless protoplasm, from which cells were derived. If now the laws of descent and heredity apply with the same force to cell-life that they do to organisms of complex cell-life, and the development of unicellular organisms occur along the same lines and is governed by the same laws which control the development

of multicellular organisms, then in the early history of cell-life, favored by the peculiar environmental conditions which prevailed at that time, there would have developed from the primordial protoplasm a multiplicity and diversity of cells. The differences which would be manifested by the innumerable varieties of cells thus created would be differences in molecular structure. Now, molecular structure not only gives to cells their special energies, but it also determines the lines of development which species and varieties would pursue, as well as the extent of development which they could attain. Therefore, in consequence of molecular structure, some cells would find their fixed limit of development in unicellular organisms, others could attain a higher limit and develop into multicellular organisms, while still other varieties, because of their molecular structure, could develop into highly specialized cells of complex multicellular beings, such as man. But, as the progressive development of cell structure is determined by the same environmental agencies, and governed by those laws of descent which control the evolution of higher organisms, it becomes necessary that this influence be inquired into. Going back, then, to the period of time when cells were first evolved in infinite varieties from primordial protoplasm, we will attempt a description of the intense and incessant warfare which was then waged by the cells against their environment, and by the different varieties of cells against each other, basing the description upon the warfare that is now being made by cells against the same agencies.

First, the newly evolved cells were environed by certain conditions of heat, moisture, food supply, light, electricity and climatic influences, to which their very existence was conditioned. Consequently those cells which were in most perfect harmony with their environmental surroundings are the ones which would survive the "struggle for life," while those not in harmony would perish.

Second, as cell energy,—the power of doing cell-work,—is the result of cell-structure, and this structure is again the result of molecular grouping within the cell-body, and, as molecules vibrate in definite and distinctive periods of time and thus produce in the surrounding ether wave-motions of equal periods, it follows that among the infinite varieties of newly created cells there must have resulted a great conflict.

The wave-motions of one variety would interfere with, destroy, or drive in sunder the molecular combinations of other varieties,

the molecules of which would again recombine to form other cells which would again be destroyed by, or would destroy, other cells, and thus the war of cells would continue on and on until there would finally result from the actions, counteractions and reactions of cells, an adjustment of their molecular motions, when all could work together in peace and harmony. The world, however, is very large and comprises many climates which have developed cells and cellular growths in harmony with different environmental conditions; for example, every country has its own peculiar bacteria, its own flora and fauna. Consequently, cells that may be innocuous to other cells which have been subject to the same environmental conditions, may be, and, as a matter of fact, are virulent to cells which have developed in another country under other conditions. Thus bacteria, plants and many animals, when carried to a foreign country may survive for a time, but sooner or later, they are sure to succumb and disappear under the changed conditions of life.

Recurring again to the primitive state of cell-evolution, we will endeavor to trace the influence which heredity has upon the progressive development of cell growths and cellular structures.

From what has been said it appears that those cells which are best in harmony with their environment, and best able to resist injurious influences of other cells, are the ones which live and transmit their molecular structures to their progeny, while other cells, which do not possess these qualities, perish in the struggle for life. In the statement that the fittest survive and transmit to their progeny those structural characteristics which enabled them to make a successful race, the term "molecular structure" must be considered in its fullest meaning; it not only includes molecular groupings within the cell, but also the motions in periodic time which are inseparably associated with such grouping. It is the molecular vibrations of the cell and the resulting ethereal wave-motions, that gives the cell its energy, its ability to select and appropriate aliment, and its power of attack and defense.

Therefore, when we say that it is the molecular structure of the cell that is transmitted by inheritance, it must not be overlooked that the qualities which go with molecular structure are also transmitted. Inherited characters would then mean the molecular groupings in the cell, with their associated motions, which the cell has acquired in its struggle against its environment, and its warfare with other cells. Now one of the qualities which the successful cell has acquired, is an ability to successfully resist

the ethereal wave vibrations that are produced by other cells; in other words, cells which have inherited these qualities are immune from attacks made upon them by other cells. This acquired quality—the natural immunity of the cell—is transmitted by heredity and becomes more fixed in the future cells, and is held by them in their progressive development from simple to complex cell structures, and from uni-cellular to multi-cellular organisms, and it is this inherited quality that gives to animal and vegetable organisms—man included—their natural immunity.

No correct opinion of cell-life, or the life of cellular organisms can be had; there can be no correct conception of the causes of natural immunity, whether possessed by a bacterium cell or by those cells of which man's body is composed, that is not based upon the evolution of cell life from the simple to the complex, and from the undifferentiated to the differentiated cell-structure, as a result of those laws of inheritance known as natural selection, heredity, adaptation and environment. If our physical theory is true, it is in this manner, and in conformity with these laws, that man has acquired his natural immunity, the molecular structure of the cells of his body, with their equivalent molecular vibrations, represent certain adjustments of molecular energy which were gradually acquired by the ancient ancestors of these cells through wars and battles of cells, the like of which has never occurred in the history of man. By "natural selection" is meant that law of nature whereby she selects from a large number of organisms those varieties and species which are in best harmony with their environment. Heredity we understand to mean that natural law by which organisms transmit through the race those qualities, possessed by varieties and species; which determine their selection by nature. Adaptation we understand to be that law which enables organisms during their generation to adjust themselves to their environment. Qualities thus acquired may be, to a limited extent, transmitted through inheritance. Environment comprises those natural causes, e. g., climate, food-supply, temperature, moisture, etc., which determine what species or varieties nature will select for the purpose of perpetuating the race.

It is well known that variations occur within the limits of every race, species or class of organisms. No two individuals are exactly alike, differences of size, vigor, adaptability, resisting power, or in some other features, are to be always found in every family, order or group of organisms; some varieties of the same

class are better able to make the race of life than others because they are in better harmony with their environment, and better able to resist the attacks of other organisms, consequently, these are the ones which nature selects for race preservation and progressive development. The continued selection by nature of the fittest variations of successive generations, in long periods of time, is, perhaps, the most important factor in the progressive development of the organism, but at the same time, this development is conditioned and limited by the molecular arrangement of its primordial protoplasm. Those primordial cells, which eventually develop into specialized cells of complex multicellular organisms, do not lose in the advanced stages of their development the immunity from attacks of other cells, which they acquired through many battles in the early period of their development. It is to this fact—the adjustments of molecular structure, with the resulting adjustments of cell-forces, which the primitive cells acquired and transmitted through the favored varieties which nature selected in forwarding the progressive development of the organism, and the preservation of these qualities in the germ-cells, through which the race characteristics are perpetuated,—that, we believe, is to be found in the principle cause of the natural law of racial and individual immunity; and to cells and molecules, which have these inherited qualities, we must ascribe those “fine differences in the structure and activity of the tissues of the body,” to which Prof. Joseph Coates attributes natural immunity.

When the statement, that natural immunity depends upon the natural resisting power of the tissues to pathogenic bacteria, is examined in the light furnished by this physical explanation, it ceases to be jargon, and becomes, at once, an intelligible hypothesis, in which the mind has no trouble in clearly tracing the relationship and mode of action between the cause assigned, and the effect claimed by the hypothesis. Natural immunity is, however, not alone secured by natural selection in the manner above described. There can be no reasonable doubt that the constant presence of, or even frequent visitations from virulent infectious diseases, will first destroy those who are most susceptible to its influence, and, in the course of time, but very few, if any, out of the entire population will remain who are not naturally immune from the infection, and as natural qualities are transmissible through inheritance, a time would arrive, sooner or later, when a race of people, placed under such influ-

ences, would become naturally immune from an infection that would be virulent to other races of people who had not been similarly placed.

It is also a matter of observation that persons, who are constantly subjected to endemic diseases, or who are frequently exposed to epidemic influences, will acquire, from such exposure, a greater or less degree of immunity from the endemic or epidemic diseases. This is attested by physicians, whose residence in such communities has given them excellent opportunities of observation. Immunity, which is acquired in this way, is, however, a very different thing from that which is secured by the law of natural immunity, which we have been discussing; it is limited in its action to the individual, and is never transmitted by him to his children; whereas, natural immunity is a racial characteristic, which protects not alone the individual, but also gives immunity to his posterity through indefinite generations. The first is acquired and not transmissible, the other is inherited and is transmissible. Immunity may be acquired by many other methods, but however it is induced, it never extends beyond the life of the individual; often, unfortunately, it is terminated long before this time. The subject of acquired immunity is one of very great interest for the physician, but we must reserve its discussion for the next chapter of this essay. Whether acquired qualities are ever inheritable is a subject of dispute, so far as it refers to complex multicellular organisms, and especially to man, the latest and more advanced views, based upon the investigations of Weisman, declare against the transmission of acquired characters. But this opinion will not hold true of the lower forms of life, especially of those forms,—the bacteria,—with which our inquiry is concerned. It has been conclusively established by experimental investigations, that bacteria, and perhaps other lower forms of living organisms, will transmit through many generations certain qualities, which they have acquired by artificial means; for example, from exposure to excessive heat, from the action of chemical agencies, or in growing such organisms in unsuitable food media. This process of changing the biologic habits of bacteria is known as "attenuation," and is of great interest and practical importance. It especially concerns our inquiry, because of the direct bearing it is believed to have upon man's acquired immunity against infectious diseases, and will be further referred to under this head.

The reason why bacteria, and other lower types of living or-

ganisms, are capable of transmitting, through the race, qualities which they have acquired, while complex multicellular organisms of the higher types of organization do not possess this power, is no doubt, to be found in the fact that in the simplest cells there are no visible structural differentiations; such cells have no distinguishing parts upon which devolve a separate performance of physiological labor; on the contrary, there is a homogeneity of structure and physiology in all portions of such cells; the same physiological qualities, of breathing, eating, digesting, assimilating, moving, and of power of reproducing itself which the cell, as a whole, possesses, may also be performed in full by any of its divisions. But, in the specialized cells composing the bodies of higher organisms, a different state of affairs is found to exist; certain cells are set apart to perform special work, thus one class of cells perform this, another class of cells perform that, and other classes perform different functions of the organism. Now, in this dividing out, among the different cells of the body, the physiological labor of the organism, giving to each class of cells that portion of this labor to which its structure and organization is best adapted to perform, and for which, in fact, it has been especially evolved, it is likewise found that, the physiological function of reproduction is entrusted to a class called germ-cells whose single duty is to perpetuate the race; they belong to the race and transmit its characteristics, and not those acquired by the individual. The somatic, or body-cells, on the other hand, belong to the individual, and all changes which are produced (through adaptation) in these cells, or in the tissues from which they are built, or in all parts of the individual's body, terminate with his life. Thus a sharp line of division is drawn between the germ-cells and the somatic-cells; the first belong to the race, the second to the individual; changes induced in the germ-cells will be transmitted through the race, while changes induced in the somatic-cells continue only during the life of the individual. Natural immunity, then, is a characteristic of the germ-cells and transmitted by inheritance, while acquired immunity is a quality of the somatic-cells, and, consequently, is not transmissible, but terminates with the life of the individual.

The kind and degree of immunity which nature secures to cells and cellular organisms will necessarily vary with the conditions of environment under which the cells and cellular organisms have developed. Other determining factors would be the conjugation of different races and varieties, and the perpetuation

of those acquired characters which are transmitted by heredity.

Man's natural immunity from the vast swarms of bacteria which surround and envelope him, must then be ascribed to the fact that the cells, and cell molecules of his body, because of inherited characters which they possess, are invulnerable to the disruptive power of these bacteria, whilst inherited characters are qualities of molecular structure, which produce vibrations that cannot be influenced by those produced by innocuous bacteria, therefore all bacteria whose molecular vibrations cannot shake apart, and convert into poisonous albumins, any of the albuminoid molecules of man's body, are, from this fact, harmless or innocuous to man. But, as different races of men have developed under different conditions of environment, it would follow, from the laws of natural selection and descent, that corresponding differences would exist in the molecular structure of their albuminoids, and that these would carry with them differences in susceptibility to bacterial influences. Man's migratory habits, his ability, in many cases to withstand environmental influences, and the intermingling of races, would, it is true, greatly modify the action of these laws, so far as they relate to his present state of development, but it is a reasonable presumption, that in his earlier stages of development, or those of his tissue cells, such favorable conditions did not prevail, and consequently we would expect to find, and as a matter of fact there does exist, between races of men, a marked difference in susceptibility to infection. Now, if such differences as above mentioned can occur between fixed varieties of the same species, they would occur in a more marked manner between different species, hence we find in many instances, that bacteria which are infectious to one species are innocuous to another species, this difference in susceptibility, which is known to exist between individuals of the same race, is to be explained as the result of the law of "variation," *e. g.*, no two members of the same family, nor two families of the same race, are found to be identically alike in features, temperament, size or disposition. Such individual differences, like the individual differences in susceptibility, are claimed to result from the law of "variation," which is an integral part of that scheme of evolution that is based upon natural selection and heredity.

The underlying principle, the *point d'appui* of the physical theory of immunity and infection, is grounded in the accepted teachings of physics, chemistry and biology, while the theory in its full development is the outcome of what is believed to be

legitimate deductions from these teachings. For example, it is believed and taught that atoms and molecules vibrate in definite and unvarying periods of time; that atomic and molecular vibrations produce wave motions of equal periods in the surrounding ether; that ethereal wave-motions are subject to the "law of interference"; that force, the efficient cause of all physical phenomena, whether manifested as physical action outside the body, or as physiological action inside the body, is inseparably connected with the motion, of atoms, molecules or of mass;* that atomic and molecular energy is the result of wave motions produced by atomic and molecular vibrations in periodic time, and for the same reason, and in the same degree that molecular wave-motions are influenced by interfering waves, will the energy which they produce vary, in its manifestation, or degree, with that of its cause.

The wave vibrations produced by a molecule are, therefore, regarded as the sum of its atomic vibrations, and the result of an adjustment, by interference, of atomic wave motions.

Therefore, it is assumed that the ether waves or energy of a

*The force referred to is physical force, and its domain of action is confined to physical phenomena within or without the body; it is not claimed nor believed, that this is the efficient cause of mental phenomena when these are considered aside from the physical causes which are required to develop them. Such phenomena do not belong to the domain of physical science, and are not explicable by physical hypotheses. The distinction between mental and physical phenomena is thus forcibly stated by Professor Huxley: "Nobody, I imagine, will credit me with a desire to limit the empire of physical science; but I really feel bound to confess that a great many very familiar and, at the same time, extremely important phenomena, lie quite beyond its legitimate limits. I cannot conceive, for example, how the phenomena of consciousness, as such, and apart from the physical process by which they are called into existence, are to be brought within the bounds of physical science. Take the simplest possible example, the feeling of redness. Physical science tells us that it commonly arises as a consequence of molecular changes propagated from the eye to a certain part of the substance of the brain, when vibrations of the luminiferous ether of a certain character fall upon the retina. Let us suppose the process of physical analysis pushed so far that one could view the last link of this chain of molecules, watch their movements as though they were billiard balls, weigh them, measure them, and know all that is physically knowable about them. Well, even in that case we should be just as far from being able to include the resulting phenomena of consciousness, the feeling of redness, within the bounds of physical science, as we are at present. It would remain as unlike the phenomena we know under the names of matter and motion as it is now."

molecule, or molecular compound, will vary with molecular structure, and, when such compounds are formed into organized or living tissue, the energy which results from its molecular movements, constitute "vital force" which, again, varies with molecular structure, thus the "vital force" or energy of a brain-cell is quite different in its results from that of a liver-cell, and this difference, it is believed, is the result of molecular structure.

When now we regard the progressive development of cells and cellular organisms, thus constructed and controlled, as taking place under the rule of "natural selection" and "heridity" I think it must be admitted that the conclusions of our physical theory are the outgrowth of fair and legitimate reasoning from accepted premises.

These views may, no doubt, appear quite startling to many persons, as do all declarations which seriously disturb the usual order of prevailing opinions, but they certainly should not be discarded for these reasons alone. If they are true they should be accepted, if not true their fallacy should be exposed.

Unfortunately, medicine has gathered, during its long career, much useless and unprofitable lumber, such as old sayings like "vital force," and old theories like "vital action," which are seriously retarding its progress into the galaxy of exact sciences; they should be thrown overboard or gotten out of the way and a new start should be taken with clearer and more scientific ideas to guide us abreast of the sister sciences. The following quotations from men no less eminent than Foster, in Physiology; Huxley, in Biology; J. Clerk Maxwell, in Physics; and Thomson, in Chemistry, show the trend and scope of scientific thought on these questions. It is needless to say that the opinions of such men, in matters relating to their special departments of science, are entitled to great respect:

Professor Michael Foster, M. D., says: "We have, in speaking of protoplasm, used the words 'construction,' 'composition,' 'decomposition,' and the like, as if protoplasm were a chemical substance in the sense that it arises out of the union or coincidence of certain factors which can be resolved into what the chemists call 'elements,' and can be at any time, by applying appropriate means, broken up in the same factors, and indeed into chemical elements.

"This is not the place to enter into a discussion of the nature of the so-called chemical substances, or, what is the same thing, a discussion concerning the nature of the matter; but we may

venture to assert that the more these molecular problems of physiology, with which we are now dealing, are studied, the stronger becomes the conviction that the consideration of what we call 'structure' and 'composition' must, in harmony with the modern teachings of physics, be approached under the dominant conception of modes of motion.

"The physicists have been led to consider the qualities of things as expressions of internal movements; even more imperative does it seem to us that the biologists should regard the qualities (including structure and composition) of protoplasm as in like manner the expression of internal movements.

"He may speak of protoplasm as a complex substance, but he must strive to realize that what he means by that is a complex whirl, an intricate dance, of which what he calls chemical composition, histological structure, and gross configuration, are, so to speak, the figures; to him the renewal of the protoplasm is but a continuance of the dance, its functions and actions the transference of figures. . . . And the conception which we are urging now is one which carries an analogous idea into the study of all the molecular phenomena of the body.

"We must not pursue the subject any further here, but we felt it necessary to introduce the caution concerning the word 'substance,' we may repeat the assertion that it seems to us necessary, for a satisfactory study of the problems on which we have been dwelling for the last few pages, to keep clearly before the conception that the phenomena in question are the result, not of properties of kinds of matter, in the vulgar sense of these words, but of kinds of motion."*

Professor Huxley says: "The broad distinctions, which, as a matter of fact, exist between every known form of living substance and every other component of the material world, justify the separation of the biological sciences from all others. But it must not be supposed that the difference between the living and not living matter are such as to justify the assumption that the forces at work in one are different from those to be met with in the other. Considered apart from the phenomena of consciousness, the phenomena of life are all dependent upon the working of the same physical and chemical forces as those which are active in the rest of the world.

"It may be convenient to use the terms 'vitality' and 'vital

*Encyclopædia Britannica, 9th ed., Article Physiology.

force, to denote the causes of certain great groups of natural operations, as we employ the names 'electricity' and 'electrical force' to denote others; but it ceases to be proper to do so, if such a name implies the absurd assumption that 'electricity' and 'vitality' are entities playing the part of efficient causes of electrical or vital phenomena.

"A mass of living protoplasm is simply a molecular machine of great complexity, the total results of the working of which, or its vital phenomena, depend on the one hand upon its construction, and on the other to the energy supplied to it; and to speak of 'vitality' as anything but the name of a series of operations is as if one should talk of the horology of a clock."*

Professor J. Clerk Maxwell says: "Thus molecular science sets us face to face with physiological theories. It forbids the physiologist from imagining that structural details of infinitely small dimensions can furnish an explanation of the infinite variety which exists in the properties and functions of the most minute organisms.

"A microscopic germ is, we know, capable of development into a highly organized animal. Another germ, equally microscopic, becomes, when developed, an animal of a totally different kind. Do all the differences, infinite in number, which distinguish the one animal from the other, arise from some difference in the structure of the germs? Even if we admit this as possible, we shall be called upon by the advocates of pangenesis to admit still greater marvels. For the microscopic germ, according to this theory, is no mere individual, but a representative body, containing members collected from every rank of the long-drawn ramification of the ancestral tree, the number of these members being amply sufficient to furnish not only characteristics of every organ of the body and every habit of the animal from birth to death, but also to furnish a stock of latent gemmules to be passed on in an inactive state from germ to germ, till at last the ancestral peculiarity which it represents is revived in some remote descendant."†

Julius Thomson, in his introduction to "Thermo-chemical Investigations," says: "Theoretical chemistry is based upon the molecular theory, according to which all matter is made up of molecules, and these molecules of atoms. The physical state of

*Ibid., Article Biology.

†Ibid., Article Atom.

bodies depends upon the arrangement and motions of the molecules, the other physical and chemical properties depend upon the kind a number of atoms in the molecule, upon their arrangement and relative motions."*

[TO BE CONTINUED.]

For the Texas Sanitarian.

OBSCURE MENTAL DERANGEMENT.

F. S. WHITE, M. D., SUPERINTENDENT STATE LUNATIC ASYLUM,
AUSTIN, TEXAS.

[Read at Austin District Medical Society meeting, March 24, 1892.]

The human mind is to-day almost, if not quite, as great a mystery as it was a century ago. It is now considered by the majority of alienists, that the mind is not an entity, separate and distinct from the brain, but is the product of nervous tissue.

Hammond says, that wherever there is nervous tissue there is mind. To no class of men is the difficulty of understanding mental phenomena more patent than to those who have devoted the most time and study to psychology.

I am free to confess that great advancement has been made in this branch of medical science. That we can locate with precision most lesions of the brain is an established fact; especially is this so when the disease is confined to the motor or sensory centers, but when an attempt is made to explain satisfactorily just what mind is, just how and where a sensory impression is transformed into a motor impulse, the result is failure. It is known that an impression conveyed to the sensorium by any of the special senses may be transformed into an abstract idea, but it is not known how or where that transformation takes place. There is a correlation of forces in the brain similar to that which exists between the imponderable forces of nature, and which may some day be as well understood. There are certain relations which exist between the cells in the brain, and which produce normal mind, and there are certain forces which preserve these relations.

The more highly organized and developed the brain is, the

*W. R. Nichols: Popular Science Monthly, October, 1883.

more complicated these conditions and relations become. There is a vast difference in the structure of a brain that can originate a *Paradise Lost*, a *Romola* or a *Hamlet*, and the brain of a *Hot-tentot*.

No two brains are alike, and as a result, no two minds are the same. There is a very great similarity, however, existing between all brains and minds; but the minute variations in structure are responsible for the peculiarities which distinguish one individual from another. These variations from the common produced a Shakespeare, a Byron, Johnson, and an Emerson, as well as a Rabelais, and a "Mark Twain."

Having thus briefly referred to the normal mind, and to the complicated structure of its organ, it may now be well to notice in the same manner the manifestation of abnormal function of this important structure. It goes without saying that the derangements of mind, resulting from diseases of its organs, are as diversified and complicated as are the manifestations of its normal functions.

The very slightest lesion will oftentimes derange or disorganize the entire mental phenomena. The nervous system is often compared (and the comparison is an apt one), to a system of electric wires, where if only one wire is broken or displaced, confusion of the entire system results. If then this be the case with metallic conductors, how much more marked must be the result with conductors which have sensation at one end, and intelligence and the moral sense at the other.

There are all degrees of mental derangement from the victim of acute mania to the mildest case of so-called moral insanity. This difference can only be due to the difference existing in the brain structure, and the character and extent of the lesions present. In the one the entire intellectual motor and emotional centers are profoundly affected; in the other, the finer portions of the cerebrum suffers.

It is no uncommon occurrence for some certain individual to commit acts or say things entirely at variance with his established character and reputation; he very probably violates the law in some way, or outrages some of the usages of society in such a manner as to render himself distasteful to decent people. It will then be said of him that he was certainly a most consummate hypocrite to have concealed for so long his true nature, the outcry against him is unanimous in his condemnation. His misconduct is attributed to the criminal nature of the unfortunate

man, while the real cause is to be found in a pathological condition of the brain. There may be no marked disease, no symptoms indicative of cerebral softening schrosis or general paresis. The line between the pathological and the criminal is so illy defined that it is with great difficulty we can distinguish just where the one ends and the other begins. These little acts of an abnormal nature are only peninsulas, as it were extending out into the great sea of insanity.

They project over the border land, and indicate the general outline and condition of the mind of which they are a part. It is just such cases as these that perplex judges, juries and expert witnesses in the courts of our country.

The true cause of these apparent criminal acts is a disease of the brain, an obscure lesion which effects only the finer structures, dulls the finer sensibilities of the mind, and removes that power of neat and nice discrimination between right and wrong.

The breaks are slightly taken off by disease, and thus the animal and lower nature gains the ascendancy. In all cases of mental derangement, the higher faculties are the first to feel and manifest the blighting hand of disease, this is so, for the reason that they are the production of the most finely organized, most highly developed, most sensitive and hence the most easily impaired portion of the brain.

As an instance of the change produced on the moral nature, I might mention the fact, that it is often the case that a man who has always lived a sober and upright life, and borne a good reputation, suddenly and without any known cause takes up the habit of drinking intoxicants to excess. Following this is an unmistakable outbreak of insanity which is immediately attributed to intemperance, when in truth it is only the result and not the cause of the mental break down.

The powers of resistance are so impaired, that the unfortunate victim does not have the proper appreciation of the enormity of his wrong doing. The knowledge that it is wrong may remain, but the power to resist is gone; these are fine points which do not receive the notice and attention they demand.

There is no difficulty in arriving at a correct conclusion in regard to well-marked cases of insanity, but it is the cases of obscure mental derangement that tax the physician's knowledge.

Feigned insanity is too often set up as a defense for crime, but this does not prove that real cases do not exist and should not receive the proper attention.

Knowledge of right and wrong is not the proper standard. In the light of modern research and increased information it needs to be revised and broadened until it reads, knowledge of right and wrong, and the power to appreciate the right and refrain from doing wrong. This is often assailed as dangerous doctrine, as one that would turn every criminal loose on the community. I do not consider it such. It only seeks to differentiate more closely between the criminal by nature and the one who is the victim of cerebral disease. The one should be punished by the laws of the land, the other protected and treated in hospitals for the insane.

Those belonging to this class of insane persons are the most dangerous, as they are regarded by the casual observer as sane, but depraved and criminal, consequently they are permitted to go unrestrained of their liberty, and at the time may have some concealed delusions, which make them a menace to every one with whom they come in contact; and based on these delusions (for which they are not in any way responsible) their acts are justifiable.

Correspondence Department.

DIPHTHERIA.

LETTER FROM W. K. GRAYSON, M. D.

FLORENCE, TEXAS, March 18, 1892.

Editor Texas Sanitarian:

I read with special interest in the December number of the SANITARIAN the editorial on the subject of diphtheria, and as the writer of that article truthfully remarks, "It is especially apropos now that the disease has made its appearance in Texas, and that many of the readers of the SANITARIAN may be called upon to put their knowledge of the disease to the proof," consequently it behooves us as physicians to gain all the information we can, and not only so, but what knowledge we may gain, also to impart to others, more especially as to the prevention, by hygienic and other means, the spread of this dire disease.

Fraenkel, over a year ago, announced the separation of a poison-

ous principle from culture fluid of typhus microbes, which, when injected into healthy animals, would produce morbid symptoms in every way identical with those produced by the micro-organisms-themselves. The original investigations were conducted principally with diphtheria bacilli, but experiments made since with different kinds of pathogenic microbes resulted in the isolation of similar albuminous bodies, capable of retaining their activity even when exposed to a temperature of 100° C. Continuing his investigations with the diphtheria bacillus, Fraenkel found that the specific toxalbumin was incapable of conferring immunity, and he arrived at the conclusion that the culture-fluid contained two distinct principles, the one toxic, the other insuring immunity. The toxic principle was found to be destroyed at a temperature of between 55 and 60° . The second body, however, the one conferring immunity, may be kept at a temperature of 100° C. at some length of time before entirely losing its properties, at 70° and over its use is but slightly impaired. Fraenkel then relates how he prepared experimental fluid from the culture of diphtheria bacilli by keeping it for one hour at a temperature between 65 and 70° C., 10 cm. of which he injected under the abdominal skin of a guinea pig. A fortnight later the same animals were inoculated with virulent diphtheria bacilli, without being affected. However, the foregoing protective injection had no power of curing the disease. A disease like diphtheria is too rapid to permit the agent to exert its curative influence as might be expected in the case of other more slowly progressive diseases.

Behring, another investigator, intent on discovering means for the cure and prevention of this dread disease, has tried various chemicals, some of which have proved quite promising, prominent in which is iodine trichloride. He has found, for instance, that immunity may be conferred upon guinea pigs by injecting culture fluid four weeks old, to which has been added iodine bichloride in the proportion of 2 in 1000, allowing it to stand for 16 hours. This renders guinea pigs immune. A third method consists in first infecting the body, and then curing the disease therapeutically. For the latter purpose, excellent results have been attained from sodio-auric, chloride naphthylamin, trichloroacetic acid; but more especially iodine trichloride. One other substance capable of increasing the organism's resisting power against bacterial attacks is hydrogen peroxide. Experiments in this direction have not been concluded, but very strong indica-

tions to this effect have been observed by treating guinea pigs. Behring is of opinion that immunity does not result from the body becoming accustomed to the specific attack, but consists in a peculiar change of the blood constituents, enabling the latter to successfully resist the deleterious germs. Dr. Behring also hints at the possible cure of diphtheria by way of blood transfusion. Experimenting with animals, he has succeeded not only to cure diphtheria, but render immune against infection, by simply transfusing blood into the subjects from animals naturally immune.

Perhaps the above may interest some of your readers if published. If so, my object in this communication will be attained.

IT WAS THE SOUSE.

Editor Texas Sanitarian:

Referring to your letter from Dr. Beatty, I was called one day not long ago, to see three prominent families in Osage City, all suffering from severe vomiting and purging, intense pain in the bowels, and great prostration. A little inquiry elicited the fact that all had partaken of "head cheese" purchased that morning from a cleanly and respectable (?) farmer's wife, but, as sometimes happens, dangerously economical. When the farmer slaughtered his hogs, the heads being the least valuable part, were last cared for. Meanwhile they underwent partial decomposition, and in that condition froze. Subsequently they were boiled, the bones removed and the meat made into cheese, the cheese frozen, brought to town and sold to friends, and before it was thoroughly thawed was eaten by them. When examined, in its thawed state, it sent a warning to the olfactories not recognized when frozen.

Hogs heads, with or without the removal of the *meatus auditorius externus* and its ceruminous glands, are not only more liable to undergo rapid and dangerous decomposition because of the chemical combination and friable nature of the salivary glands and brain, but because the deadly "setting maul" or the bullet has left the brain in such condition as to hasten such processes "Beware of "head cheese."

W. L. SCHENCK, M. D.

Kansas City, Mo.

Department of Public Health.

DECISIONS BY THE IOWA STATE BOARD.

Is an attending physician exercising proper precaution when he goes from a scarlet fever patient directly across the street into a church crowded with people, without any change of his apparel?

Ans. No. Such an act is most reprehensible, and in violation of every principle of quarantine. A physician, who is so unmindful of his obligations to the public, should not be permitted to visit persons sick with a contagious disease, and the local board of health should prevent it. While outer air is a good disinfectant, the distance of the width of a street would not be sufficient to warrant safety in such cases as that cited.

Where scarlet fever exists in a community, the premises are quarantined, and no children from such premises attend the public schools, is it advisable to close the schools?

Ans. No. The schools should never be closed unless they become so decimated by non-attendance, or the disease becomes so epidemic as to render it necessary. The latter condition cannot happen except by reason of gross neglect of duty by the local board of health. There is no good reasons for an epidemic of any contagious disease in any community. The statutes provide ample means to prevent it.

Where a mother was taken on the third day of the month with diphtheria, the children were immediately sent away from home, and she had fully recovered on the seventeenth, the premises thoroughly disinfected, all bedding and clothing used about the patient thoroughly boiled, how much longer is it necessary to maintain the quarantine?

Ans. It has been repeatedly held in such cases as that cited, that where the sick have fully recovered, the premises, clothing and persons thoroughly disinfected, and there are no further exposures, the quarantine may be released, but the power to release the quarantine is vested in the local board, who are presumed to be cognizant of all the facts in the case. In the case put, however, the children should not be permitted to return home before the first of the next month.

Has a school sub-director the right to dismiss a teacher, the only reason being that she has been exposed to scarlet fever?

Ans. The question is one of law and of fact. A teacher cannot be dismissed except by action of the board of directors, and

then only for sufficient cause. (See Section 1734, Code of 1873.)

That a person has been exposed to a contagious disease is no evidence they will have the disease, many persons are exposed who do not. To dismiss a teacher for such reason would be an assumption based on a contingency that may never happen, and would be unreasonable. The dismissal of a teacher would be a practical closure of the school, which is not advisable, and is wrong in practice. If the teacher has been so exposed that there is danger of conveying infection by the clothing, then the person should be quarantined until the clothing has been properly disinfected, and a permit granted to re-enter the school, by the local board of health. Where contagious disease exists in a community, the public schools should not be closed. The spread of the disease should be prevented by an isolation and quarantine.

What is the difference between the two terms "contagious" and "infectious"?

ANS. The definition given by lexicographers, abound in contradictions and indefiniteness. They use the terms indiscriminately, to mean the same. However, most people have an idea, and the use of the terms distinctly in the regulations made by the State board, warrants the conclusion, that there is a distinction. Those writers, who have given the most logical conclusions, agree that those diseases are contagious which are communicable from one individual to another by direct contact; and infectious, when communicated by ærial currents. Thus typhoid fever would be deemed contagious, but not infectious. Ague would be infectious, but not contagious. Consumption, diphtheria, scarlet fever, and small-pox, would be both contagious and infectious, as they are communicable by direct contact, and through the media of the atmosphere. Typhoid fever is communicated by direct contact with the disease germ.—*Bulletin State Board of Health, Iowa.*

VITAL STATISTICS.

The following circular has been sent to all the physicians in the State of Connecticut:

"The law of Connecticut on the matter of reporting births occurring in the State is:

"Every physician, or midwife, who shall have professional charge of the mother at the birth of any child, and every attend-

ant who may act as midwife at such time, where no physician or midwife is employed, shall, *during the first week of the month* next succeeding such birth, furnish the registrar of the town wherein such births may have taken place a certificate, signed by such physician, midwife, or attendant, and stating, from the best information that can be obtained, the name of such child, if it have one; the place and date of its birth; its sex; the name of its father, the maiden name of its mother; the ages, color, residence and nationality of its parents; the occupation of its father; the number of the child, and the name and address of the medical attendant.'—*Section 103, Gen. Statutes.*

"Any person violating any of the provisions of this act, shall be punished by a fine not exceeding twenty-five dollars nor less than ten dollars.'—*Section 112, Gen. Statutes.*

"The experience of the board in relation to reports of births is, that the certificates illegally deferred are more inaccurate and imperfect in themselves and less complete in number, than when returned monthly, according to law.

"The State Board, as being charged with the supervision and registration of vital statistics, feels it to be its duty to see that the law is obeyed.

"The Board expects you, in future, as a law abiding citizen, strictly to observe its requirements. Registrars are requested to *endorse on the back of certificates the date on which they are returned.*

"The subject is one of no trivial importance. The frequency with which the records are consulted, and certificates of record given to establish claims to titles and to pensions, to determine the settlement of paupers, and to prove the rights of heirs and other rights, sufficiently attest their value. The neglect of this duty by physicians and others whom the law charges with it, is a direct personal wrong inflicted upon the new born native, as well as a violation of a just and important law.

"Every child born in Connecticut has the right by law to have its birth recorded, with its parentage and other facts sufficient to identify it. The omission may be of serious consequences to its future interests in the world, and to the public welfare."—*Board of Health Bulletin.*

Would that we could impress upon our legislators the necessity and importance of a law in Texas requiring a strict registration of births and deaths. As a matter of fact, after the passing away of one or two generations, there will be no possible way of establishing as a fact that any person now or recently a citizen of Texas ever lived. The importance of a record of births becomes evident, in light of this one fact.

Department of Abstracts and Selections.

LATE DINNER.

DYSPEPSIA: ITS CAUSES AND PREVENTION.

The principal meal of the day should be postponed until the day's work has been performed. An elaborate dinner during business hours is a needless sacrifice of time. A hearty meal should not be followed by close application, either to physical or intellectual work. Nervous force should be allowed to preside undisturbed over the digestive function, which cannot be the case if the body or the mind is busily engaged in work. Furthermore, the late dinner can be followed by social recreation, either at home or abroad, by a satisfactory digestion which has been mainly accomplished at the arrival of bed-time, and which predisposes to a good night's rest.

In thus glancing at the physiology of digestion, the nature and value of the foods usually found upon our tables, and the manner in which we should approach the table, we open the way for a clear comprehension of the relation of diet to nutrition and malnutrition, of the way in which diseases may be engendered by bad dietetic habits, or relieved by an appropriate regimen. Scarcely a subject can be found of more interest to the physician and importance to those whom he advises. For in an enormous proportion of cases ill health can be traced to infringements of the natural laws governing the consumption of food. On the other hand, a skillful management of the invalid's dietary, though a difficult task, is often followed by the most gratifying results.

From our preceding study we learn that a moderate sized meal, leisurely enjoyed and thoroughly digested,—a meal in which the nutritive principles of the food are incorporated by the tissues,—is of far more actual worth than an abundant meal badly digested. In the latter case discomfort certainly follows, and the system probably fails to appropriate enough to supply its need. If a vigorous appetite stimulates one to consume an amount of food far in excess of the demands of the system, the immediate result is torpidity, soon followed by increased blood-pressure and abnormal activity of the eliminative organs. The practice of ha-

bitually eating and drinking to excess imposes a constant strain upon the organs of digestion, circulation, and elimination. This strain eventuates in the production of functional disorders, which, in the course of time, become organic, in the elaboration and retention of toxic products and the genesis of various toxic states.

Improper habits as regards diet, is the most prolific cause of dyspepsia. Eating hastily, with a pre-occupied mind, masticating imperfectly, eating at irregular intervals, the consumption of excessive quantities, midnight lunches, will, in most cases, sooner or later entail mischief. Nature usually gives the transgressor ample warning of the danger of the course he pursues. Attacks of acute indigestion, accompanied by vomiting, colic, and diarrhoea, call attention to an oppressed alimentary tract. If such warnings are neglected, chronic dyspepsia is gradually established. Appetite becomes capricious, and is no longer a safe guide as to the kind and quantity of food to be consumed. The patient becomes timorous in his eating, is afraid of one article or another, attempts a rigid regulation of his diet, and, by a constant direction of thought to his digestive apparatus, in all probability aggravates his trouble. Flatulence ensues, with palpitation of the heart, nervous alarms, constipation, while fermentive decomposition of the contents of the stomach occasion heartburn and water-brash. Gradually the presence of ill-elaborated products excites a gastric catarrh, the gastric juice becomes altered in composition, the walls of the stomach become coated with a thick mucus, which mixes with the food and offers an obstacle to the penetration and action of the gastric juice. The difficulty progresses from stomach to bowel, the intestinal fluids are modified, the tube becomes catarrhal, and this process may spread to the common bile duct and result in attacks of jaundice and the formation of biliary concretions. Fermentive decomposition is continued, and involves albuminous, fatty, and starchy materials. The blood is contaminated in a two-fold manner, being robbed, on the one hand, of its proper and sufficient pabulum, while, on the other, various deleterious, or even noxious products are thrown into the circulation. Anæmia and toxæmia result from embarrassed digestion, while insufficient nutrition is a factor co-operating in the production of chlorosis. An impoverished blood imperfectly nourishes the various tissues and organs, so that we daily meet with pale faces, flabby muscles, weak action of the heart, functional murmurs, headaches, neuralgia, and other evil consequences of chronic indigestion. The sexual powers decline,

and, in women, menstrual difficulties are induced. Diseases of the skin, often of a very obstinate character, such as seborrhœa, acne, rosacea, lichen planus, and furunculus are, in many instances, connected with digestive failures.

An even more formidable array of diseases is due to impairment of the functions of the liver: A part of the work of this important organ consists in the removal of the excrementitious products from the blood. It decomposes noxious products, and recombines them in such form that they are rapidly eliminated by the kidneys and bowels. In persons of vigorous appetite and naturally strong digestive powers, who habitually indulge to excess in the pleasures of the table, the liver is constantly overworked. The difficulty is intensified if, as is frequently the case, these individuals lead sedentary lives. Instead of being carried on to the formation of urea, the metamorphosis of waste products is stopped at the production of uric acid, an insoluble substance not easily eliminated. Brick-dust sediments appear in the urine, and various difficulties arise, due to the retention of uric acid in the circulation. This condition, now generally known as lithæmia, makes its presence known by attacks of asthma, palpitation of the heart, angina pectoris, various affections of the skin, and terminates, if not checked, in a paroxysm of rheumatism and gout. Arterial pressure is heightened, the heart hypertrophies, and the kidney contracts. Finally, we have increased production of excrementitious materials, with diminished capacity for elimination; toxic substances accumulate, until they are present in sufficient quantity to overwhelm the nervous system.—*Medical Bulletin.*

DR. McLAUGHLIN ON IMMUNITY.

We are pleased to see in the *Bacteriological World*, from the pen of the editor, "P. P.," an appreciation like our own, or even beyond it, of the brilliant theory of immunization advanced by Dr. J. W. McLaughlin, of Austin, Texas, and republished in the *Sanitary Era* last year. In the following paragraph Dr. Paquin forcibly states one of the most exasperating of obstructions to scientific progress, in the utter inattention of men, and most inexcusably of professional men, to every idea and to every writer that has not already become famous and commanding in authority. Hence it is that professional authority is attained so com-

monly by mere luck and chance and intrigue, with no uncommon basis of desert. Says Dr. Paquin:

"McLaughlin's article advanced one of those forcible revolutionizing thoughts which, in 1887, was too far ahead of his time to be considered calmly by searchers, or at all by most of men. How would it have been if a foreign celebrity had advanced it from a lofty chair of science, instead of McLaughlin from the *sanctum sanctorum* of a practising physician in Texas? We suspect that a crowd of enthusiasts would have flocked abroad to have a personal explanation of the wave motions of the microbe and animal substances, and to have a peep, if possible, at the sublime sight of atomic union, liberation, disruption of albuminoids, and their union in various ways to form ptomaines, etc., etc.

"But of course a discovery in America can never be, *for Americans*, as grand and true as a discovery in a foreign land!"—*Sanitary Era*.

A CLOSE SHAVE.

[Hygienically, not figuratively.—ED.]

Many gentlemen insist on a clean shave; it is the pride and the boast of your "tonsorial artist" that he can give you a "close shave." We have heard of one who boasted that he could "shave three days in the skin."

How many of our readers ever thought of this from a hygienic standpoint? how many of them know, or even suspect, the folly of it—not to say danger? The barber, with moist fingers, in putting on the finishing touches, stretches the skin downward, so that in passing his keen razor over it he not only removes the hair, but perhaps its root, or a part of it, together with the mouth of the hair follicle, along with a thin layer of the cuticle. In so doing, many thin blood vessels at the orifice of the follicles are lacerated, and the tips of the nerves there are exposed. The skin, after a close shave, if examined under a strong lens, will present the appearance of a piece of raw beef; it is tender and unhealthy, and "rendered to such a degree susceptible, as to be provocative of colds, hoarseness and sore throat," says a writer in *Medical Classics*.

Editorial Department.

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To whom all communications and subscriptions should be addressed.

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W. A. MORRIS, M. D.

THIS AND THAT.

Two papers of more than ordinary interest have recently become a part of medical literature. One, from the pen of Professor A. L. Loomis, on the "Histological Changes in Cured Tuberculosis,"* is based on numerous post mortem examinations, and displays the care in the selection of its data, and in the statement of the resulting conclusion, that we would expect to find in an article from the pen of this eminent clinician and accomplished author. The other paper, from a no less eminent personage, the distinguished bacteriologist Dr. T. Mitchel Prudden, is on the "Effects of Dead Tubercle Bacilli on the Body Cells,"† and is based upon numerous experimental investigations, which were conducted by Drs. Prudden and Hodenpyl in a thoroughly scientific manner. Aside from the intrinsic merit which each of these papers has, when considered separately, we desire to call attention to the significance, and we believe the benefits, which may result from considering them together. In 524 post mortem examinations made in the Bellevue Hospital dead-house, on persons dying of non-tubercular diseases, it was found that 8 per cent. of this number showed in their lungs unmistakable evidences of cured tuberculosis.

"The gross appearances of the lungs of the 44 cases included in these records were as follows :

"In 38, the apex of the affected lung was found firmly adherent to the costal pleura, with more or less puckering and depression of the adherent surface. On section, from one to ten fibrous nodules were found scattered through the lung apex, varying in

*Climatologist, January 15.

†Medical Record, February 27.

size from a few lines to an inch in diameter. These nodules, in most instances, were situated just beneath the depressed adherent surface, and were continuous with the thickened pleura. A few were found situated in the central portion of the upper lobe, and were connected with the pleural surface by dense bands of fibrous tissue. In the central portions of the larger nodules, soft cheesy or calcareous matter. In six instances, small, closed cavities, lined by a thick, dense, fibrous membrane, and containing a soft, cretaceous material, occupied the centre of large nodules. A linear cicatrix was found in a few nodules, marking the site of a healed cavity. Immediately around many of the nodules were lamellæ of less dense fibrous tissue, which was often traversed by contracted, obliterated, and dilated bronchi and impervious blood vessels. In the immediate neighborhood of the nodules, while the lung tissue appeared normal, it was found more or less emphysematous. In two instances, the entire upper lobe of the lung was transformed into a homogeneous fibrous mass. The fibrous tissue composing the nodules was more or less deeply pigmented. In all of the 44 cases, careful studies were made of sections from the nodules and the lung tissue surrounding the nodules. In these sections more or less completely organized fibrous tissue was the prominent histological change. In many, at the edge of the tissue destroyed by the tubercular process, new connective tissue could be seen just developing, and it was evident that the fibroid processes originated in one of three ways: 1st. By round-cell infiltrations of the interlobular connective tissue, so that often the interlobular septa was increased tenfold. 2nd. By round-cell infiltrations of the alveolar walls. In one section adjoining a contracted and encapsulated nodule, the alveolar walls were seen in all stages of fibroid development from round-cell infiltration up to fully organized fibrous tissue. 3rd. By round-cell infiltrations around the vessels and bronchi, which became contracted and obliterated by the fully developed fibroid growth. In some sections pleuritic fibrosis seemed to be the first change, and in all lines of fibroid tissue could be traced from the nodules to the pleura. There was no evidence in any section that the tubercular tissue itself furnished the fibroid development, but the fibroid processes were developed in the normal connective tissue in such a manner as to obliterate the avenue of tubercular infection. This corresponds to Ziegler's statement, "that the arrest of tuberculosis can only take place when the inflammatory process issues in the de-

velopment of fibrous tissue." One condition was so constantly present as to lead to the conclusion that it was an essential condition, viz., a condition of intense hyperæmia which always surrounded the tubercular areas where recent fibroid processes were active. The fully developed fibroid masses were also found studded with new capillary vessels. It was impossible in any of the sections to make out the different elements which enter into the composition of tubercle. In some a few giant cells could be made out. A large number of sections were stained for tubercle bacilli, but they could be detected in only one or two."

Dr. Loomis concludes from these histological studies "that the only way in which the arrest of the tubercular process in the lungs can be accomplished, is by the development of fibroid processes in and around the tubercular areas."

Assuming that the facts claimed, and the conclusions reached by Dr. Loomis are correct, it would seem that the proper thing to do in the treatment of tuberculosis would be to aid nature in fencing out tubercular areas by enclosing them with a cordon of fibroid tissue; therefore, how best to accomplish this becomes a question of great practical interest.

Passing by the method of Lennelogue,—of injecting tubercular joints with a solution of zinc chloride,—and the other method, of giving cantharidinate of potash for lung tuberculosis, with the statement that it is more than probable that whatever merit they possess is due to their power of causing local fibrosis around the affected areas, we come, at once, to a means of bringing about this result, which, it would seem, is both simple and effective, that is suggested to our mind from reading the result of the experimental investigations of Prudden and Hodenpyl as set forth in the paper above referred to, an abstract of which is submitted below. The substance which they used in these experiments was composed of the dead but thoroughly sterilized bodies of tubercle bacilli. These were obtained in large amounts from pure cultures and then thoroughly separated from the culture media and the products arising from their action, after which they were destroyed and sterilized by a long process of steaming, which prepared them for the experimental work described in the article.

"Having certainly killed the bacilli, and freed them from extraneous substances, they were introduced into the body in various ways,—beneath the skin, into the peritoneal and pleural cavities, into the blood-vessels, and into the lungs through the

trachea. The first effect noticed was a marked positive chemotactic action exerted upon the leucocytes. The second effect was to stimulate proliferation of the body-cells in the region in which the bacilli had lodged; thus, if they lodged in the blood-vessels they would excite proliferation of the endothelium, if in the connective tissue a proliferation of the connective-tissue cells, if in the epithelium of the lungs a proliferation of these cells. In the latter case, not only was a distinct epithelioid tissue produced, but a stroma was formed, and in about ninety per cent. of the cases giant-cells were developed. The more finely divided the culture material the smaller would be the resulting lesion. Contrary to expectation, not once has caseous degeneration been observed in the many animals subjected to these experiments. The nearest approach to it has been an occasional necrosis of the leucocytes, which showed itself first in the body of the cells, the nuclei remaining intact, which is not the case in true cheesy degeneration. There is a gradual but steady conversion of these new areas into fibrous tissue, and as they change into cicatricial tissue contraction takes place, and the blood-vessels still remaining are made to gape widely. In a few calcareous deposits have been noticed in the newly formed tissue. Sometimes these areas will remain as epithelial nodules for two or three months."

If now dead tubercle bacilli will produce a connective tissue proliferation around tubercular areas,—for example, in the lungs of a consumptive person,—and the fibroid process thus induced tends to arrest the disease, then this paper of Loomis indicates the manner and that of Prudden suggests the means of curing tuberculosis, and it becomes interesting to know, why the dead tubercle bacilli, which must always be present in considerable quantities in the lungs of consumptives, fail to arrest the disease and cure the patient. The answer to this inquiry, which is suggested to our mind, is found in the fact that living bacilli, as well as dead ones, are found in such lungs, and that the living bacilli produce in the lungs a substance—tuberculine—which causes caseous degeneration of the tubercular tissues and thus prevent fibroid changes. When, however, the bacilli are killed and sterilized they are no longer able to produce tuberculine, and are also non-septic, in fact, there is no longer anything to interfere with their power of exciting those changes, which nature inaugurates in her method of cure.

Altogether we must regard this field of inquiry as being open and promising to scientific experimentalists who are ambitious to discover a new cure for consumption.

RAILROAD RATES TO THE DETROIT MEETING.

An editorial in the *Journal of the American Medical Association* complains of the rate given by the railroads to members of the American Medical Association attending annual conventions of that body,—a rate of one and one-third fare for the round trip,—and especially complains of the conditions attached to such tickets. The tickets are on sale June 6th and 7th, and are good to return not later than the 13th. "Those who purchase tickets must take a certificate from the agent at the time of purchase," says the editorial, and "this [the certificate] is stamped by special agent, at Detroit, to purchase return ticket,—the permanent Secretary being held responsible for any tickets found in scalpers' hands." What kind of a certificate a member will have to procure from the agent, we are left to surmise. The *Journal* complains especially of the stipulation as to scalpers, and denounces it as infamous,—the idea of Dr. Atkinson, who is well nigh but not altogether ubiquitous,—being held responsible for the acts of three thousand members or more, being absurd and preposterous. The writer argues that it would be a courtesy to the members of the profession, as well as good business policy on the part of the railroads, to sell them excursion tickets at one cent per mile each way, and that it would double or treble the attendance, and thus the roads would make as much money. The writer justly thinks that the medical profession, especially the members of and delegates to the largest organization of the kind in America, are entitled to as much consideration at the hands of the railroad officials as are circus people and theatre troops, ball players and political conventions, and we think so too.

JOURNALISTIC PILLAGING.

We do not know what else to call it,—the practice which obtains with certain of our medical contemporaries of copying editorial matter without credit; the reproduction of whole editorials from leading journals as original, and under their own editorial heading. It is eminently unfair; it is a species of littleness, meanness, in fact, of which any reputable journal should be ashamed. To the *N. W. Medical Journal*, published at Minneapolis, Minn., the TEXAS SANITARIAN seems to have been a veritable bonanza in this regard. It appropriated a leading editori-

al from our December number—"Those Advertising Doctors"—publishing it as original editorial matter in the January issue of the *N. W. Medical Journal*. Noticing the omission of the usual credit, we wrote Dr. Fishblatt, the editor, calling his attention to it and protesting against a repetition of the offence. Thereupon Dr. Fishblatt sent us a telegram as follows: "Mistake of printer, will correct in March number, explanation by mail." In due course of mail we received the letter, and in the letter the Doctor claimed that the failure to credit the TEXAS SANITARIAN was the fault of the printer, and that the clipping, when sent in as copy, was duly marked "TEXAS SANITARIAN."

This was all lovely; but the very next day the February number of Dr. Fishblatt's journal—the *N. W. Medical*—was received at this office; when, behold, it contained under the head of "Editorial" another article taken from the pages of the TEXAS SANITARIAN for December—and without credit!

When the March number of the *N. W. Medical Journal* reached us (April 5th) we looked in vain for the promised explanation, correction or apology which the good Doctor hastened to telegraph us would adorn his March number.

While we feel flattered that our editorials should be copied,—glad that the *N. W. Medical Journal* finds it such a source from which to gather articles of interest for his readers,—such a *labor-saving institution*—we protest against the deliberate appropriation of our work as original, by the *N. M. Medical Journal* or any other journal. We denounce it as contemptible, and unworthy of an honorable journalist.

AUDACIOUS.

"A most audacious circumstance in connection with ex-President Bragg's [Homeopathic State Medical Association] advertising of his Bi-Chloride of Gold and Coca cure, is the unwarranted use of the name of State Health Officer Swearingen among his personal references. Dr. Swearingen is a thoroughly clean man in all respects and detests and abhors anything smacking of quackery. He has always been courteous and fair minded in his dealings with educated homeopaths, and it is an outrage that his name should be besmirched through Dr. Bragg's use of it 'without permission' in this connection."

The above, from the *Southern Journal of Homeopathy*, leaves

nothing for us to say except that Dr. Swearingen repudiates the use of his name without his knowledge or consent, but it is too small a thing to warrant him in noticing it in print.

In the same issue of the above journal Dr. Bragg is very justly scored for this departure, and the editor calls it by the right name, unblushing quackery. Can the Homeopathic State Association carry such a load? or will they back Fisher in his denunciation and expel him?

Texas Insane Asylums and Biographical Sketches of Officers.

SOUTHWESTERN INSANE ASYLUM.

The Southwestern Insane Asylum is situated four and a half miles southeast of the Alamo city, on an eminence overlooking the picturesque San Antonio river, just opposite the historic Franciscan mission of San Jose.

The asylum property consists of six hundred and forty acres of fine farming land donated by the citizens of San Antonio, to secure the location of institution.

The administration building is four stories high, not including the basement, while the ward buildings on either side have basements and three stories. The whole is built of cream-colored Calevaras brick, trimmed with limestone. An elegantly carved stone tower, over one hundred feet high, surmounts the administration building. The entire structure is finished inside with native Texas pine, while the beams, ceilings, and stairways are constructed solely of iron, rendering it practically fire proof. An Edison electric light plant, with three hundred incandescent lights illuminates the asylum. The carpenter and blacksmith shops, boiler house, kitchen and laundry are equipped with all modern conveniences.

The institution is supplied with water by an artesian well one thousand eight hundred and twenty-two and one-half feet deep (temperature 104° Fahrenheit), having sufficient natural pressure to raise the water to the top of the administration build-

ing, thus furnishing, without the aid of a stand-pipes, protection against fire.

The asylum buildings now have a capacity for two hundred and fifty patients. When completed according to the original design, will accommodate seven hundred and fifty inmates.

The heads of departments of the new asylum are as follows: Dr. W. L. Barker, of Waco, Superintendent; Dr. John B. Renshaw, of Decatur, Assistant Superintendent; Joe Lee Jameson, of Waco, Book-keeper and Steward; Mrs. M. K. McPherson, of San Marcos, Matron, and S. D. McFadden, of Austin, Chief Engineer.

The Legislature has made no appropriation for literature for the asylum, yet Mr. Jameson, the Book-keeper and Steward, has conceived the idea of getting up a library for the institution. If any one, in or out of Texas, will donate a liberal sum toward the founding of a library and reading room, it shall bear the name of the donor, and will be an everlasting monument of the generous gift. No doubt the various newspapers and periodicals will send complimentary copies of their publications to the new library, as they are already doing for the other two asylums.

THE NORTH TEXAS HOSPITAL, FOR THE INSANE.

DR. JOHN PRESTON, SUPERINTENDENT, TERRELL, TEXAS.

This magnificent institution was erected in 1884-5 at a cost of \$200,000, and opened for patients in 1885, Dr. D. R. Wallace being the first Superintendent. In 1888, another appropriation was made of \$150,000 for additional wings. These were completed in May, 1890.

During 1885 there were admitted 130 patients, and treated 130.
During 1886 there were admitted 330 patients, and treated 442.
During 1887 there were admitted 343 patients, and treated 610.
During 1888 there were admitted 259 patients, and treated 631.
During 1889 there were admitted 239 patients, and treated 642.
During 1890 there were admitted 264 patients, and treated 676.
During 1891 there were admitted 371 patients, and treated 861.

The capacity of the building is 750 beds. The number of patients on hand at this time, April, 1892, is 622.



F. S. WHITE, M. D.

Frank Sprague White, M. D., Superintendent of the State Lunatic Asylum, Austin, Texas, was born in Wise county, Texas, May 22, 1859. He is the son of J. D. White of Illinois, and Permelia Preston, a native of Kentucky. He received his literary education in the common schools of the country; began the study of medicine in 1860 under Dr. W. L. Carpenter, of Decatur, and, after attending two courses of lectures at the Central College of Physicians and Surgeons, Indianapolis, Indiana, he graduated in 1884. He was awarded the Faculty prize for the highest general average in all branches.

Dr. White located in Decatur, March, 1884, and in July, 1885, received the appointment of Assistant Physician at the North Texas Hospital for the Insane. He filled this position until January, 1892, when, upon the death of Dr. W. W. Reeves, he succeeded to the superintendency of the State Lunatic Asylum at Austin.

Dr. White married Miss Willie F. Daniel, a niece of Governor Ireland, February 10th, 1887, and they have one son. The Doctor is a member of the Association of Medical Superintendents of American Institutions for the Insane, the State Medical Association, the Terrell Medical Society, and the Austin District Medical Society. He has contributed several valuable papers on his specialty to medical literature.



B. M. WORSHAM, M. D.

Benjamin Milton Worsham, M. D., First Assistant Physician at the State Lunatic Asylum, Austin, Texas, was born in Harrison county, Texas, July 25, 1862. His parents removed to Hopkins county, near Sulphur Springs. Dr. Worsham completed his literary education at the High School, Sulphur Springs. He began the study of medicine in 1882, and took his first course of lectures in 1883, at the University of Louisville, Kentucky. He located at Fairland, Hopkins county, Texas, where he practiced about two years. In September, 1885, he returned to the University of Louisville, and in March, 1886, graduated with distinction.

Dr. Worsham removed to Sulphur Springs in November, 1888, and in December of the following year located in Waxahachie, where he resided at the time (February 10, 1891) he was appointed First Assistant Physician to the State Lunatic Asylum at Austin.

Dr. Worsham is an ex-member of the East Line Medical Association; is a member of the State Medical Association, and of the Austin District Medical Society; is a Knight of Pythias, a Mason and a Democrat.



T. O. MAXWELL, M. D.

Thomas Owen Maxwell, M. D., Second Assistant Physician at the State Lunatic Asylum, Austin, Texas, was born in Virginia in 1855, and in 1871 came to Texas with his parents, who settled at Fiskville, in Travis county. His father was a successful physician. Dr. Maxwell finished his education at King's College, Bristol, Tennessee; studied medicine with Drs. W. A. Morris and J. W. McLaughlin, of Austin. His first course of lectures was in the University of Virginia, in 1876-7; from August to November, in 1877 he attended lectures at the Missouri Medical College, and in the latter part of 1877 he entered the medical department of Vanderbilt University, Nashville, Tennessee, from which he graduated February 28, 1878, with distinction, being selected as Valedictorian out of a class of ninety-one graduates. He then returned to Fiskville, where he successfully practiced his profession until February 7, 1891, when he was appointed to, and accepted the position of Assistant Physician at the State Lunatic Asylum at Austin. Dr. Maxwell has been twice President of the Travis County Medical Society, Vice-President of the Austin District Medical Society, and is a member of the Texas State Medical Association. He is also a Knight Templar, an Odd Fellow, and a "Shriner." He was married to Florence Porter, at Caldwell, Burleson county, Texas, November 29, 1887.



W. W. REEVES, M. D.,

LATE SUPERINTENDENT STATE LUNATIC ASYLUM, AUSTIN, TEXAS.

Dr. W. W. Reeves was a native of Virginia, born June 23, 1849. He received his first education at the Jefferson High School, and afterwards read medicine with Dr. J. O. Wilcox, at Creston, North Carolina. In 1874, he emigrated to Cedar Grove, Texas, where he lived until 1874, and then moved to Wills Point, at which place he resided until called to Austin by Governor Hogg to take charge of the lunatic asylum.

Dr. Reeves was twice married, the first time in 1873, when he married Miss Cora A. Horton. His second marriage occurred in 1879, his bride being Miss Margaret Knotzsch. He leaves five children, all of them being comparatively young.

Dr. Reeves came to Austin almost a stranger. By his gentle manners and courteous bearing,—by his many excellencies he won all hearts,—made a friend of all whom he met. The Board of Managers of the asylum passed most eloquent and touching resolutions on his death.

He was prominent in Masonic circles, being a Knight Templar, and a member of Ben Hur Lodge of the Mystic Shrine. A de-

tachment of the Commandery K. T., of Austin, escorted the remains to Wills Point, the doctor's old home, and they were met at Hearne Junction by a similar detachment of K. T. from Dallas Commandery,—the encampment to which Dr. Reeves belonged. Governor Hogg also escorted the remains to Wills Point.

Dr. Reeves, it will be remembered, was assassinated by a discharged lunatic, December 29, 1891.



JOHN PRESTON, M. D.

Dr. John Preston, Superintendent of the North Texas Hospital for the Insane, at Terrell, was born in Washington county, Va., July 12th, 1851; received his literary education at Georgetown College, D. C., and his medical education at the University of Virginia; graduated in 1872. He also attended lectures at the Bellevue Hospital Medical College, New York, and graduated in 1873.

He located in Seguin, Texas, and engaged in a general practice, and resided there till January, 1886.

In February, 1886, he was appointed First Assistant Physician of the State Lunatic Asylum at Austin. In September, 1890, he resigned this position and removed to San Antonio and entered upon the general practice of medicine. Here he was residing at the time of his appointment by Gov. Hogg to the position of Su-

perintendent of the North Texas Lunatic Asylum at Terrell in February, 1891.

Dr. Preston is in the prime of life and is a close student. He is a man of fine ability, and under his management the affairs of this great charity are moving along smoothly. He was married to a daughter of Judge White, of the Court of Appeals, and has three children.



B. F. CHURCH, M. D.

Dr. B. F. Church, First Assistant Physician North Texas Hospital for the Insane, at Terrell, Texas, is a native Texan. He was born at Fairfield, Texas, August 26, 1858, and received a common school education in that place. Being in delicate health, he thought that a course of electrical treatment would be beneficial, and this awakening an interest in the subject, he spent two years in studying electric therapeutics, before engaging in the study of medicine proper. This he took up in the spring of 1885, and went to Baltimore to attend lectures at the College of Physicians and Surgeons; graduated M. D. from this institution in the spring of 1888. Before graduating, some six months, and while serving as resident student at the Maryland Lying-in Asylum he was appointed resident physician of that institution, to fill a vacancy caused by resignation.

Returning to Texas, Dr. Church located at Austin, in 1888. Here he engaged in general practice, and was succeeding very

well, when the appointment of Second Assistant Physician was offered him, at the Terrell Asylum (North Texas Hospital for Insane), which he accepted in February, 1891. To do so, he gave up a promising practice at Austin and resigned the position of visiting physician and surgeon to the State Confederate Home at Austin. On the removal of Dr. F. S. White, First Assistant Physician at Terrell, to Austin, to take the position of Superintendent of the State Lunatic Asylum, made vacant by the death of Dr. Reeves, Dr. Church was promoted in January, 1892, to the position of First Assistant Physician, which he now fills.

He is a member of the State Medical Association, of the Austin District Medical Society, and Travis county Medical Society, and was at the time of his first appointment president of the latter body.



T. B. BASS, M. D.

T. B. Bass, M. D., Second Assistant Physician North Texas Hospital for the Insane, at Terrill, Texas, was born the 25th of June, 1865, at Homer, Louisiana. He removed to Sulphur Springs, Hopkins county, Texas, in 1870, with his parents, thence to Terrell, in 1876. The years 1882 and 1883 were spent at Lexington, Virginia, in attendance at the Virginia Military Institute. During the years from 1883 to 1888 he was in the drug business in Terrell, under the firm name of Bass & Bro.

Attended lectures at Tulane University, New Orleans, in 1888, '89 and '90, and graduated April 1, 1890. Located for practice in Terrell, where he was residing at the time of his appointment, March 1, 1892.



W. L. BARKER, M. D.

Dr. William Louis Barker, Superintendent of the Southwestern Insane Asylum, near San Antonio, Texas, was born in Upshur county, Texas, on July 2d, 1852. His father, Dr. Wm. O. Barker, was a well known pioneer physician. After spending the winters of his early boyhood in the country schools, he attended Morgan H. Looney's school at Gilmer, Texas, the principal of which ranked, at that time, with the foremost educators of the South.

Having decided to make medicine his life study, after two years of preparatory study in the office of his father, he attended the medical department of the University of Louisiana, where, on March 17th, 1874, he received his diploma. Commencing the practice of medicine in his native county in that year, he remained there until 1879, when he removed to Longview and established a drug business in connection with his practice. In 1882 he went to Waco, where he has ever since enjoyed a large and lucrative practice. In 1885 Dr. Barker was elected City Health Physician of Waco. During his six years service he was instrumental in having a thorough sanitary system established, which resulted in greatly reducing the death rate, the last being

only 8.40 per thousand. He is the author of a number of reports and papers on sanitation and public hygiene.

He retired to accept the superintendency of the Southwestern Insane Asylum, by appointment of Gov. James S. Hogg, on Oct. 14, 1891.

Dr. Barker is an honored member of Waco Medical Society, having been Secretary two years and President one term of that Association. He is a member of the State Medical Association and was Chairman of Section on Practice of Medicine, Materia Medica and Therapeutics, in 1885. Dr. Barker is also a member of the American Medical Association.

Dr. Barker is a prominent member of the Masonic fraternity, having been D. D. G. M. of the 25th Masonic District of Texas.

He has taken an active part in politics, having been a delegate to almost every Democratic convention for the last fifteen years.

Dr. Barker married Miss Mollie F. Barnes, of Harrison county, Texas. Their union has been blessed by two children, Miss Ida V. and Wm. L., Jr.

Dr. Barker is a man of fine physique. Genial and frank, he is deservedly popular.



JOHN B RENSHAW, M. D.

Dr. John B. Renshaw, Assistant Superintendent of the Southwestern Insane Asylum, was born near Decatur, Wise county, Texas, on March 3, 1867. He graduated with honors in the

medical department of the Tulane University of Louisiana on March 28, 1888.

Dr. Renshaw commenced the practice of medicine in his native county immediately afterward where he continued the possessor of a large practice until his appointment to his present position. In the meantime he was a member of the Board of Medical Examiners of the Forty-third Judicial District and for the year of 1888-9 was county physician of Wise county. The Doctor was married on April 16, 1889, to Miss Anna J. Calhoun, a charming daughter of Mr. J. Calhoun, of Chico, Texas.

Personally Dr. Renshaw is a man of pleasing address, and his frank and genial disposition will win friends for him wherever he goes.

Editorial Notes and Miscellany.

Dr. Estelle, late of Paris, Texas, has located at Austin.

DR. BALL of Bellevue, Texas, had his barn destroyed by the cyclone, April 6.

THERE were four cases of diphtheria in Austin during the month of March, all in one family.

Dr. M. A. Saylor, of Texas, is in attendance at the American College of Dental Surgery, Chicago, Ill.

Dr. Albert Shackleford, son of Dr. S. S. Shackleford, dentist, Austin, Texas, has just returned from the dental department of the Baltimore Medical College, where he graduated in dentistry.

A Dr. J. P. Lennox, living on Wallace creek, near San Saba, Texas, was arrested on the 9th of April, charged with murder in the Indian Territory. The dispatches say he resisted arrest, but when he saw there was no chance to escape, he took chloroform, but not an overdose.

FAT should enter as largely as possible into the diet of neuralgic persons, which should, in other respects, be of a supporting

and digestible character. Fat beef or mutton, vegetables containing a large proportion of oil, the oleaginous seeds, olives, and chocolate diminish the susceptibility to attacks. A similar dietary is useful in chorea and hysteria.—*Shoemaker.*

DR. Q. B. NEALE, formerly of Austin, Texas, has located in Guthrie, Oklahoma. Dr. Neale is a colored physician, a regular graduate, and has enjoyed the confidence of the profession here for ten years. The necessity for colored physicians in the South is no longer a question, and Austin sincerely regrets the loss of one who stands so well in his profession as Dr. Neale.

SCARLET FEVER AND MEASLES COMPARED.—During the two weeks ending March 29th, there were reported, in New York City, scarlet fever, 420 cases, with 11 per cent. of deaths; measles, 705 cases, with $5\frac{1}{2}$ per cent. of deaths, just half that of scarlet fever.

During a discussion on this subject in Austin recently, it was stated by some of the oldest physicians here that scarlet fever in Austin was as mild as measles, with the same death rate.

EXIT PROF. AMICK.—Dr. W. K. Amick, "Professor of Ophthalmology and Otology" in Cincinnati Medical College, in consequence of his having gone bodily over to the quacks by the publication in the *Lancet Clinic*, of his "Chemical Cure for Consumption," with a list of certificates a la almanac, has by the trustees of the college been requested to resign. Dr. Chas. N. Dodd has been appointed in his stead. It is thought the Cincinnati Medical Society will expel him. The publication referred to was slipped in on the *Lancet Clinic* unawares.

Henry Purnell, the lunatic, who became notorious in consequence of his assassinating Dr. W. W. Reeves, Superintendent of the Texas lunatic asylum on the 29th of December last, was tried by the Travis County Court last week on an indictment for murder. The jury pronounced him insane on the testimony of Dr. Denton, who had, as Superintendent of the Asylum formerly had charge of Purnell, and other corroborating testimony. Purnell will now be tried for insanity and sent to the asylum, where, it is hoped, he will be kept permanently as he is hopelessly insane with "suicidal and homicidal impulses."

State Health Officer R. M. Swearingen left on the 15th inst. for Tampico, Mexico, and other points on the Mexican seaboard, in the interest of the public health of Texas, and in furtherance of his plan of perfecting international quarantine. While there Dr. Swearingen will doubtless make arrangements for successful and satisfactory co-operation between the quarantine officers of both countries, whereby little or no interruption of commerce may occur in case of threatening epidemic. He expects to return in time to attend the annual State Medical Association meeting at Tyler, on the 26th to 30th inst.

A VICTIM OF TIGHT LACING.—Tight lacing was, indirectly, the cause of the mysterious and sudden death of Miss Clara S. Holloway, in Camden, at a card party, Saturday night, November 14th, according to the opinion of the doctors who made a post-mortem examination. County Physician Iszard presided at the post mortem, and was assisted by Drs. Middleton, Casperson, Ireland, and Leavitt. They found that death resulted from cerebral hemorrhage, resulting from congestion of the lungs, superinduced by the tightness of the young lady's clothing.—*Philadelphia Inquirer*.

[No doubt many other similar cases occur, but are not reported.—EDITOR.]

A POPULAR NEED.—“There is, among educated persons, a generally confessed need of popular instruction as to matters of health, and of all things indirectly appertaining thereto; and this, in effect, is the concession of the existence of a considerable public need. * * * This need can be increased by perceptions aroused by treatment of the subject of well being; in a word, supply will increase the public demand for instruction in this branch of knowledge.”—*Shoemaker*.

There is no higher authority than Dr. Shoemaker, on this point, and he says the educated public are hungry for information on matters affecting the health,—on sanitation and hygiene. To supply this demand, in a measure, is the object and aim of the TEXAS SANITARIAN, and it is hoped that through its agency “perceptions” may be “aroused” which will increase the demand—for the SANITARIAN. We are much gratified to be able to state that quite a liberal percentage of its subscribers are non-professional people. We have on our list a representation of the better element of laboring people also. This shows that the peo-

ple are interested in such subjects as belong to the domain of hygiene and preventive medicine; and that they should be educated in it, no reasonable man will deny. A leading light recently said, "the medicine of the future will be sanitation and surgery."

THE April (1892) number of *The Alienist and Neurologist* contains: "Surgical Cure of Mental Maladies," Resume by Dr. Guiseppe Seppilly, Italy; "Some Principles Involved in the Nature and Treatment of Inebriety," by T. L. Wright, M. D., Bellefontaine, Ohio; "Art in the Insane," by J. G. Kiernan, M. D., Chicago, Ill.; "Drug Habituation," by Lucius W. Baker, M. D., Baldwinville, Mass.; "Tumor of the Cerebellum," by George J. Preston, M. D., Baltimore; "The Epidemic Inflammatory Neurosis; or Neurotic Influenza," by C. H. Hughes, M. D., St. Louis; "Pessimism in its Relation to Suicide," by Wm. W. Ireland, M. D., Scotland; "Classification of Insanity," by C. G. Chaddock, Traverse City, Mich.; "Report of a Case of Transitory Frenzy," by Theo. Diller, M. D., Pittsburgh; "Intermittent Paralysis," by L. Bremer, M. D., St. Louis. Besides the usual selections, editorials, hospital notes, reviews, etc. C. H. Hughes, M. D., Editor, 500 N. Jefferson Ave., St. Louis. Subscription: \$5.00 per annum; single copies, \$1.50.

Including reports by regular observers and others, diphtheria was reported present in the month of February, 1892, at sixty places; scarlet fever at one hundred; typhoid fever thirty-two, and measles at twenty one places.

Reports from all sources show diphtheria reported at ten places less; scarlet fever seven places less; typhoid fever eight places less, and measles at eight places more than in the preceding month.

HENRY B. BAKER, Secretary.

Lansing, Michigan, March 3, 1892.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of March, 1892, at twenty-seven places; scarlet fever at one hundred and thirty-three places; typhoid fever at forty-two places, and measles at twenty-four places.

Reports from all sources show diphtheria reported at seventeen places more; scarlet fever thirty-three places more; typhoid fever at ten places more, and measles at three places more in the month of March, 1892, than in the preceding month.

HENRY B. BAKER, Secretary.

Lansing, Michigan, April 7, 1892.

EXCERPTS FROM FOREIGN JOURNALS.

BY A. S. W.

TREATMENT OF DYSPEPSIA BY MASSAGE OF THE STOMACH AND INTESTINES.—The massage is performed in the following manner: Two or three hours after a full meal, the patient is placed in the dorsal decubitus on a bed, the legs flexed on the abdomen, full inspirations are taken, with the mouth wide open. The doctors begin by gently rubbing the stomach, augmenting in strength as he progresses (depending on the sensibility of the patient), to a thorough kneading of the stomach, all pressure must be made in one direction, viz: from the cardiac end of the great curvature, to the pyloric end.

The treatment is not exclusive of, but combined with those usually employed in cases of dyspepsia, always provided, there are no contra indications, hemorrhages or other complications.

The above treatment appears to be general in Austria and Germany. By this maneuver it is claimed the following objects are obtained: first, passage of the food to the abdomen; second, avoid the too long sojourn of the food in the stomach; third, facilitate the evacuation of ill digested food, and suppress the hurtful action on the gastric mucous membrane. Further, the kneading helps in making up the contractile muscular fibres of the stomach, which is more or less diminished in gastric disturbances from whatever cause. There can be no doubt, but that massage manipulations of the stomach, augments the secretion of gastric fluids.—*Wiener Med. Wochenschrift*.

THE *Revista Artiglieria e Genio* gives advice of a great discovery in Sweden, the manufacturing of optical lenses and objectives. It is said that they are absolutely transparent, hard, and take a fine polish, possessing great definition, penetrating and resolving power, enormously enlarge the object under the field of investigation. These new objectives give a definition 500 times greater than attainable before, and is said to be of 800,000 millimetres. This will turn out to be a great boon to microscopical investigators, and will be hailed with gratitude by those engaged in that field of inquiry. It is by the adding phosphorous and lime to the material in making the lenses that this great advantage is obtained.

The two primary qualities in objectives is, defining and resolving power, hitherto unattainable in the same combination.

If resolutions of markings on diatome-valves is the microscopist's special pursuit, he must use objectives of the largest attainable angle, with the best definition compatible with it. But if engaged upon difficult biological investigations demanding perfect definition he must be content with the largest angle he can obtain.

If the claim in the producing of objectives possessing both defining and resolving power in a higher degree than Powell and Leland's 1-35 inch, there opens an unlimited field of discoveries to the microscopical investigator.

YELLOW FEVER.—Doctor Alfred Garcia, of Cuba, reports some very remarkable cures of cases of yellow fever. The patient is shut up in a room, he calls "une chambre polaire." This room has hollow sides and is filled with ice, sufficient to reduce the temperature to 10° at 0°. The patient in this room soon gets saturated with vaporized water and condensed air. The water is absorbed by the lungs. Dr. Garcia claims that this water washes the tissues and eliminates through the kidneys. The amount of urine voided is from 1 litre to 1½ a day.

The patient is kept on absolute diet, suffers from no thirst. Many remarkable cures are claimed for his method.

N. B. Dr. Garcia fails to inform us if his chambre polaire is entered with winter or summer clothes, or with any clothes, while under treatment.—*Medicine Moderne*.

You think that there is nothing new under the sun!

TOILET PRESCRIPTIONS.

FETID PERSPIRING FEET.

Dr. Bordet gives the following formula:—

R French chalk, ... 40 parts
Subnitrate of bismuth 45 parts
Permanganate of potassium 13 parts
Salicylate of sodium 2 parts

M. This powder should be dusted daily into the stockings. The feet should be washed every morning and evening, and, after washing rubbed with alcohol.

The method of treatment recommended by Unna is as follows:

R Ichthyol 5 parts
Turpentine 5 parts
Zinc ointment 10 parts

M. Apply after the feet have been bathed in water, to which a little vinegar, mustard, or spirits of camphor has been added. During the day they may be dusted with the following:

Powdered mustard..... 1 part
 French chalk 30 parts M.
 —*Pharm. Era.*

COMEDONES.—BLACK HEADS.

Unna makes use of:—

R Wool-fat 10
 Vaseline 20
 Hydrogen peroxide 20-40 M.

This mixture is to be applied to the affected parts and allowed to remain, which can be easily done if the application is made at night. If it can also be applied during the day time, a further advantageous action is secured.

EAU DE COLOGNE—PRIZE RECIPE.—The following recipe for cologne was awarded the prize by the *Chemist and Druggist*, two hundred and nineteen persons competing:

R Oil bergamot..... 2 drachms.
 " lemon 1 "
 " neroli 20 drops.
 " organum 6 "
 " Rosemary 20 "
 Alcohol, triple distilled 1 pint.
 Orange-flower water..... 1 ounce.

Mix.

FARINA COLOGNE.

R Oil neroli..... 1 drachm.
 " lemon..... 4 "
 " lavender ½ "
 Deodorized spirit..... 14 ounces.
 Rosewater sufficient to make a pint mixture.
 Macerate in a wooden vessel three months.—*Shoemaker.*

GENERAL TWIGGS' HAIR DYE.

The TEXAS SANITARIAN does not approve of hair dyeing and similar practices, but as people will do it, we give here one per-

haps as harmless as any. It was said to have been invented by Gen. Twiggs, of Mexican war fame, and used by him:

R Precipitated sulphur 1 drachm.
 Acetate of lead 1 "
 Rosewater 4 ounces.

Mix. S. Apply twice a day until the desired depth of shade is obtained.—*Ibid.*

FOR THE SKIN AND LIPS.

(Jelly of Roses.)

R Fine Russian isinglass $\frac{1}{8}$ ounce.
 Glycerine 2 ounces.
 Rosewater 6 "
 Oil roses 10 drops.

Mix. Keep in flexible metal tube and squeeze out in small quantities as used.—*Ibid.*

SANITARY TRIUMPHS.

In an interesting article in the June issue of the American Statistical Association's quarterly publication, we find some significant facts regarding the advantages of sanitary legislation experienced in England within the past sixteen years. In the year 1875 a general law was passed in England for the protection of the public health, known as the Public Health Act, and from that time the death rate in England has decreased for all diseases which owe their origin and growth to defective drainage and impure water supply. Typhoid fever is such a disease, and the diminution of 57 per cent. in the death rate from this malady is undoubtedly the greatest triumph for sanitary reformers. During the ten years from 1866 to 1876 the annual mortality was 22.19 per thousand inhabitants; and from 1838, the first year of careful registration, to 1865, the average annual rate was about 22.35 per thousand. But for the ten years of the period 1880 to 1889 the average falls to 19.08. It seems justifiable to ascribe this diminution in the death rate to the operation of the Public Health Act, and the execution of duties such as drainage, inspection of water-supplies, vaccination, and others which are becoming better understood. Mr. Farr, in his *Vital Statistics*, estimates the value of human life in England to be about \$770 a head; that is, the value inherent in the people as a productive money-earning race. If we suppose, which is allowable if other

things remain the same, that this diminution of the death rate during this last decade was due to the measures taken to that end, we find that the number of lives saved, representing a total for the decade of 856,804 persons, according to Mr. Farr's estimate represents a social capital of \$650,000,000. Thus in ten years the country has more than regained the sum that was spent in sanitary improvements in the fifteen years, and in this calculation nothing figures for spared grief, better health and happier homes. This diminution of mortality is not observed in all forms of disease. The mortality from zymotic diseases, from 1861 to 1870, was 42.54 per 10,000 living and this was reduced to 24.52 in the period from 1880 to '89, but measles, diphtheria, whooping-cough appear to have escaped the influence of sanitary measures. Consumption has equally diminished in England in these last years. The mortality from this cause in the years 1861 to '70 was 24.89 per 10,000 living. For the period 1880 to '89 it fell to 17.36. The statistics farther demonstrate that sanitary measures affect the death rate of young persons between the ages of one and twenty-five years, and especially between ten and twenty years. The gain in this latter decade, which amounts to 28 per cent., is economically a great gain. The death rate for old persons has increased during the last decade, a fact which may be chargeable to the bustle of the nineteenth century, the wear and tear upon the nervous system, while the effect of sanitary improvement is most noticeable in the abatement of infant mortality.—*Amer. Analyst*.

THE SPENDTHRIFT TENDENCY AS TO HEALTH.

In his excellent work, "Hereditary Health and Beauty," Dr. Shoemaker says:

"We examine our cancelled checks, add to them those still outstanding, and by comparison of the sum-total with our deposits in bank, carefully cast the balance to find out what still stands to our credit there. But in life, even in robust health, how many carefully reckon up the income and outgo to ascertain what is the balance of endurance left? So far are most reasonable creatures from following such a course, it is generally enough for a man or a woman to be robust for them to consider their capital unlimited. Pleasure, vanity, and a thousand other frivolous notions, induce us to spend lavishly of the greatest of all treasures. The old woman in the fairy tale with mumbling jaws

and rheum-streaming eyes, was eager to exchange all her riches for the poor girl's blooming cheeks and rounded form, and not less eager was the maiden, in ignorance of the value of her price-less possessions, to seal the bargain. But the mutual transfer made, how immediately the maiden saw, from her withered, living grave, that all the riches of the earth cannot compensate for the joy that wells in the heart of youth, health and beauty."

There is a lesson in the above which all would do well to take to heart. A man, a reasonable creature in all else, is unreasonable and blind in this regard. His horse is cared for, protected, fed, and not overworked—because he is his servant; his carriage or buggy, his residence, receive attention to prevent their wearing out, yet his body, the tenement house of his soul, the machine run by his vital power, and whose condition makes or mars his happiness, is not only not cared for, but is too often absolutely abused; treated in such a way as to hasten its decay and death. To get drunk, for instance, is to do great violence to this machine,—to overwork it, to tax it to its utmost. To neglect the plain rules of health, is to show an utter disregard of consequences to this machine, which can only be compared to neglecting to cleanse and oil his other machinery—to keep it from wearing out. Ignorance can only be pleaded in extenuation of such neglect or abuse; surely it cannot be attributed to indifference.

The people want information on the subject of personal hygiene and the conservation of vital force.

AUSTIN DISTRICT MEDICAL SOCIETY.

The eighteenth quarterly meeting of the Austin District Medical Society was held in the Medical Hall, Austin, March 24th, at which there was a good attendance of the physicians of the district.

Dr. G. W. Christian in the chair.

Dr. F. S. White, of Austin, the new lunatic asylum superintendent, and Dr. W. R. Barton, of Salado, were admitted to membership.

The following papers were read and discussed:

"Diphtheria and Croup," by Dr. W. P. Fleming, of Georgetown; "Obscure Mental Derangements" (published in this issue of the TEXAS SANITARIAN), by Dr. F. S. White, of Austin; "Backward Displacements of the Uterus," by Dr. W. J. Math-

ews, of Austin; "McLaughlin's Physical Theory Criticised," by Dr. A. N. Denton, of Austin.

The following delegates were elected to represent the Society at the Tyler meeting of the State Medical Association, April 26th:

Dr. Sam Cunningham, Elgin.

" T. D. Wooten, Austin.

" G. W. Christian, Burnet.

" A. Garwood, New Braunfels.

" W. T. Richmond, Manor.

" J. W. Hamilton, Lampasas.

" J. W. Carhart, Lampasas.

" F. R. Martin, Kyle.

" Fannie Leake, Austin.

" Seth M. Morris, Galveston.

" J. E. Thompson, Galveston.

" B. E. Hadra, Galveston.

" W. R. Barton, Salado.

" E. Clark, Lockhart.

" R. Atkinson, San Marcos.

" F. S. White, Austin.

" J. F. Dean, Hornsby.

" T. J. Bennett, Austin.

On motion the Secretary was instructed to issue certificates to alternates in case any of the above regular delegates could not attend the Tyler meeting.

The next regular meeting of the Society will be held in Medical Hall, Austin, Thursday, June 23, 1892.

T. J. BENNETT, Secretary.

SIMPLE BUT EFFECTIVE.

A certain skilled practitioner had a number of charity patients whom he faithfully attended as occasion required, expecting and receiving only such reward as comes from the comfort of doing good, says the *Youth's Companion*. Among these patients was old Martha, a well-preserved relic of "befo' de wah." Being up to all the ways of her white neighbors, she took "la grippe" and immediately sent for her medical adviser.

"Why, Aunt Martha, you don't mean to tell me that you're under the weather?"

"I'se away undah it, doctah; away undah it."

"Well, what is it?"

"I doan't know what it is, doctah, but I got it pow'ful bad."

The doctor readily comprehended the trouble, and writing out the proper prescription, he gave it to the excellent but aching Martha and told her to put it in a tumbler of water, stir it well and take a teaspoonful three times a day. Then, assuring her that he would look after her attentively, he departed. The next day he found his patient much better, and by the third day she was in an improved stage of convalescence.

"Oh, doctah," she exclaimed, "'yo' med'cine am simply pow'ful. I stir it and take it jes' like you say, and I feel better ebery time."

"Well," said he, "perhaps you won't need any more; let me see how much you have left."

Old Martha lumbered across the room and brought from the shelf a tumbler half full of water.

"Why, what's this?" he enquired.

"Why, dat, doctah, is de med'cine yo' lef' me, and I was very careful to stir it every time, jes' like you say."

"Yes; well, Martha, I don't believe you'll require any more of it; the fact is, I didn't know myself how powerful it was." And fishing out his prescription, which was rather the worse for its three day's bath, he went away impressed with the belief that the mysteries of medicine had not been half told:

THE BI-CHLORIDE OF GOLD TREATMENT AFTER KEELEY—ITS VICTIMS, ETC.

If the press dispatches are to be relied upon, the Keeley method of treating dipsomania, morphomania, etc., is responsible for many cases of insanity and suicide. The last victim was a Mrs. Evelyn Garretson, of 30 Garden Avenue, Hoboken, New Jersey, April 8th.

The following is a partial list of the "cured" from the various Keeley institutes: Walter B. Earle, died a raving maniac in the Poughkeepsie Insane Asylum; Luther Renson, of Indianapolis, is now in an insane asylum; Isaac Mailhouse, 364 Wynne street, New York City, is said by his friends to be on the verge of insanity; C. N. Vaughn, of Denver, became insane February 24th and tried to murder his landlady; Colonel Mines and James C. Fair, Jr., died, their physicians claim, from the Keeley cure; Ex-Congressman Stephen T. Hopkins, late President of the White Plains Bi-chloride of Gold Club, was "cured" of the whiskey

habit and then committed suicide; Harry H. Ansley, of St Joseph, Mo., died February 21st, while under treatment; Lawyer Isaac Angel, of New York, was made a physical wreck by the Keeley treatment, and now is seeking legal redress.

It is understood, of course, that the above list comprises only those whose names were made public contrary to the interest and wishes of the institutes. This array of failures may be construed, and properly, too, perhaps, as showing only one side of the question, but to a well-balanced and intelligent physician needs only the "second thought" to convince him of its questionable object and downright fraudulency.

Men of low morals are in all professions, the medical not excepted. They sell their birthright for filthy lucre. Having once been recognized as a reputable physician, it is not a hard matter to get some recognition from the unwary, starting, as it were, with their nefarious work within the ranks of the profession.

SOUTHEAST TEXAS MEDICAL ASSOCIATION REVIVED.

BEAUMONT, TEXAS, March 30th, 1892.

A meeting of physicians was held in the parlors of the Crosby house last evening for the purpose of reviving the old Southeast Texas Medical Society.

The object of the meeting being briefly stated, the following temporary officers were elected: B. F. Calhoun, Chairman, and F. Hadra, Secretary. The organization of the society was effected by the election of the following permanent officers:

President, Dr. A. N. Perkins; First Vice-President, Dr. C. Y. Thompson; Second Vice-President, Dr. S. W. Sholars; Secretary and Treasurer, Dr. F. Hadra.

The constitution and by-laws of the old Southeast Texas Medical Society were read and adopted, with the exception of fee bills, which were eliminated. Beaumont was made the permanent meeting place of the society, and the second Tuesday of January, April, July and October the time of meeting.

Drs. J. Saunders, B. F. Calhoun and J. B. Roberts were elected censors.

The following delegates to the State Medical Association were appointed: Drs. Calhoun, Sholars, Roberts, Blewitt and Price, with Drs. Thompson, Callen, Saunders, Seastrunk, Cruse and

Ogden alternates. The President and Secretary were added as regular delegates.

Drs. Saunders, Price and Roberts were appointed to read papers, respectively, at the next meeting, the discussion to be led by Drs. Calhoun, Sholars and Thompson in the order named.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The American Public Health Association will hold its next meeting in the City of Mexico on the 30th of November, 1892. Railroad fare will no doubt be greatly reduced, and the occasion should be taken advantage of by many hundreds of physicians and sanitarians in the United States to visit that quaint city and peculiar people. A comparative examination of public health matters in our sister republic will be of great interest to all concerned.

The following are the officers for the ensuing term: Dr. Felix Formento, New Orleans, La., President; Dr. Domingo Orvananos, Member of the Supreme Board of Health of Mexico, First Vice-President; Dr. Walter Wyman, of U. S. Marine Hospital Service, Second Vice-President; Dr. Irving A. Watson, Secretary State Board of Health of New Hampshire, Secretary; Dr. J. Berried Lindsey, Secretary State Board of Health of Tennessee, Treasurer.

PRACTICE IN CONNECTICUT.

Not long ago a physician at a distance, evidently thinking of settling in Connecticut, made inquiry as to the restrictions in practice there, and received the following reply, which was published in the Board of Health Bulletin :

"Sir—Anybody can practice medicine in Connecticut. You do not need to register; you do not need a medical diploma; you do not need to know the difference between peppermint and opium; you do not, indeed, need to know anything. You can simply come and live here and begin to practice. The laws of Connecticut will sustain you in collecting your fees for professional services, if you render any which you choose to call such. But if you undertake to carry me or my trunk to the depot for pay, you must get a license. If you collect the swill from your

neighbors to feed your pigs, you must get a license. If you want to empty your cesspool, you must get a license. But you can practice medicine in Connecticut without a license."

INFLUENCE OF AGE ON THE ABSORPTION OF MEDICAMENTS.

Gatsuby has found that there is a very considerable influence exercised by age on the absorption of medicaments. Thus he found that when a dose of $2\frac{1}{2}$ grains of potassium iodide was given to a boy of eight years, weighing fifty-five pounds, the drug appeared in the urine in fifteen minutes, whereas, in a man aged thirty-six years, and weighing one hundred and fifty pounds, the iodine was eliminated in thirty-one minutes. The salicylate of sodium was eliminated in fifteen minutes in the child, but in the adult in from twenty to twenty-five minutes. An exception to these results was found in a man of seventy years who eliminated the drugs three minutes before a youth of eighteen years. —*Revue Therapeutique Medico-Chirurgicale.*

PREMIUMS FOR SUBSCRIPTIONS.

We will send the TEXAS SANITARIAN (regular price \$2), post paid, to any address in the United States, Canada or Mexico, as follows: One copy free to any person sending two subscribers and \$4, or one copy free and "Stories of a Country Doctor" (regular price \$1), for three subscribers and \$6, or one copy free, and an aluminum case hypodermic syringe (the finest syringe made, regular price \$3.50), for six subscribers and \$12; or for ten subscribers and \$20 will send \$10 worth of any instruments in Aloe & Co.'s catalogue.

THE DEADLY DOG AGAIN.

CRAWFORDSVILLE, IND., March 11, 1892.

John Steward, a farmer residing near here, has just died a horrible death. Some time ago his pet dog showed signs of the rabies. He killed the dog some days ago. In burying the dog

some froth got on his hands and he soon became a raving maniac. He was tied up, but continued to suffer most intense and excruciating pain until death ended his misery.

Book Notices and Reviews.

SYPHILIS: IN ANCIENT AND PREHISTORIC TIMES. By Dr. F. Buret, of Paris France. Translated, with notes, by A. H. Ohmann-Dumesnil, M. D., of St. Louis, Mo. "Syphilis Today and Among the Ancients," in three volumes. Philadelphia: F. A. Davis, Publisher, 1891. Vol. I contains 226 pages, well bound. Price, \$1.25. Send to publisher. No. 12 in the Physicians' and Students' Ready Reference Series.

This book consists of a history of syphilis from the earliest times up to the present. It is divided into twelve chapters: I. In what the modern disease, that is to say, Syphilis, consists; II. Origin of the word Syphilis; III. The Age of Syphilis; IV. Syphilis in Prehistoric Times; V. Tchoang-Syphilis among the Chinese 5000 years ago; VI. Kasa-Syphilis in Japan, observed at the beginning of the Ninth Century; VII. Among Ancient Egyptians at the time of the Pharaohs; VIII. Among the Hebrews. IX. Among the Hindoos 1000 B. C., etc., etc., closing with the rational treatment of syphilis at the present time.

ESSENTIALS OF MEDICAL ELECTRICITY. By D. D. Stewart, M. D., chief of the Neurological Clinic in the Jefferson Medical College, etc., Philadelphia, and E. S. Lawrence, M. D., chief of the Electrical Clinic, Jefferson Medical College. With sixty-five illustrations. No. 23 of Saunders' Question Compend. Philadelphia: W. B. Saunders, Publisher, 913 Walnut street. 1892. Price, \$1.

This book is the A B C of electricity. The subject is made so plain that an under-graduate would have no trouble in comprehending the full meaning and application. This feature is quite creditable to the authors.

Publisher's Notes.

Read Kenner & Co.'s advertisement in this issue.

See the change in Leonard's advertisement in this issue. You will find some bargains offered in it.

We take pleasure in calling attention to the advertisement of the Gum Elastic Roofing Co., of New York, which appears on our inside cover page this issue. Write for prices.

Attention is called to the advertisement of Dr. Julius Fehr's Talcum powder. in this issue of the TEXAS SANITARIAN. This powder has a wide range of usefulness. See advertisement.

In the March number of the TEXAS SANITARIAN our printer got too many "c"'s in the Antalgia Mfg. Co.'s ad, and left out too many "l"'s. Read it again and write for literature and samples.

The Aldine Fire-Place advertised in this issue of the TEXAS SANITARIAN seems to be something very superior. It is claimed to burn either hard or soft coal with great economy and without odor, making it the most healthful and desirable fire-place yet manufactured.

The Philadelphia Polyclinic is as well equipped for practical post-graduate instruction as any school in this country. In fact, it has every advantage in clinical material, laboratory apparatus and faculty, besides it is not over-crowded, and when you have attended a course there, you will feel that you have your money's worth. See advertisement in this issue.

The *American Gynecological Journal*, edited by Chas. N. Smith, M. D., Toledo, Ohio, is one of the neatest and most ably edited journals that comes to this office. It is devoted to gynecology, obstetrics, and abdominal surgery. The journal is high class in every particular, and should receive the support of the best men in the profession. The best writers in America contribute to its columns. It is well suited to the general practitioner, as well as the specialist. Price, per annum, \$2. Clubbed with the SANITARIAN (\$2) for \$3.

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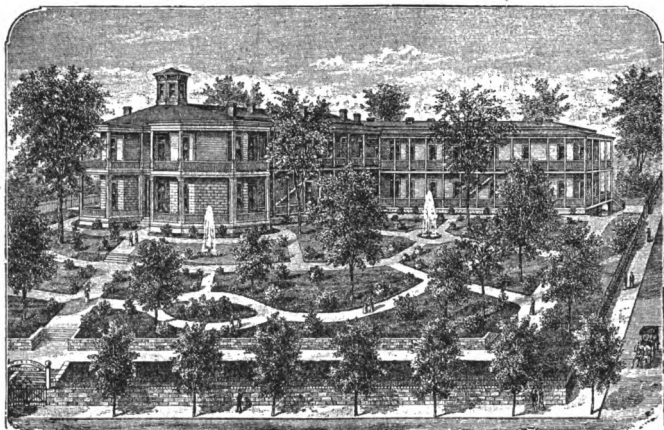
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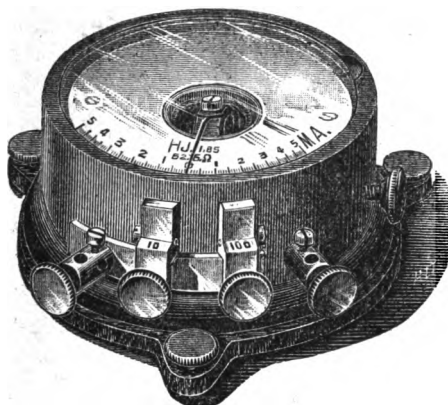
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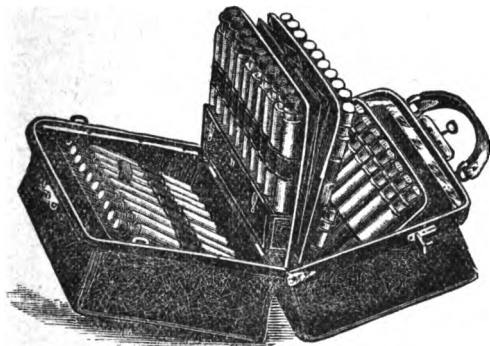
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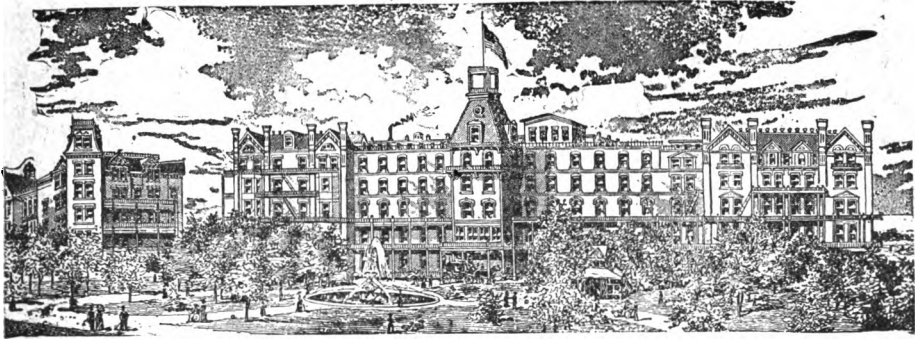
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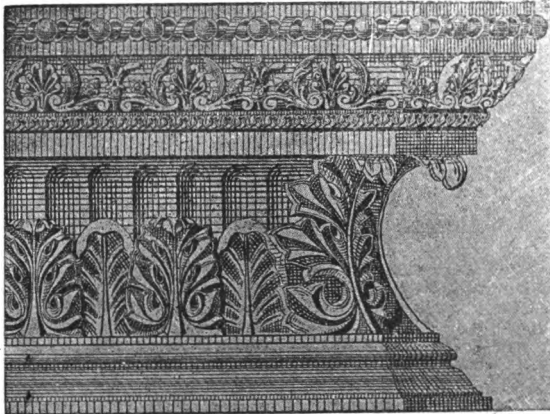
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Total assets	48,826,755	45
Total liabilities	40,934,964	90
Surplus on 4 per cent. basis	7,891,790	55

The average death rate of the Company during the past twenty years was 1.06; during the past fifteen years, 1.03; during the past ten years, 0.97; during the past five years, 0.95; during the past year, 0.89, and lower during each period than the death rate of any other leading company.

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	\$23,345,286	25
And to its living policy holders for dividends, matured endowments, surrendered and lapsed policies	33,615,356	99

Total	\$56,960,643	24
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Add present assets	48,826,755	45
Amount paid to policy-holders and held for them	\$105,787,398	69
Total premiums received	94,671,408	68
Excess of assets and payments to policy-holders over premium receipts	\$11,115,990	01

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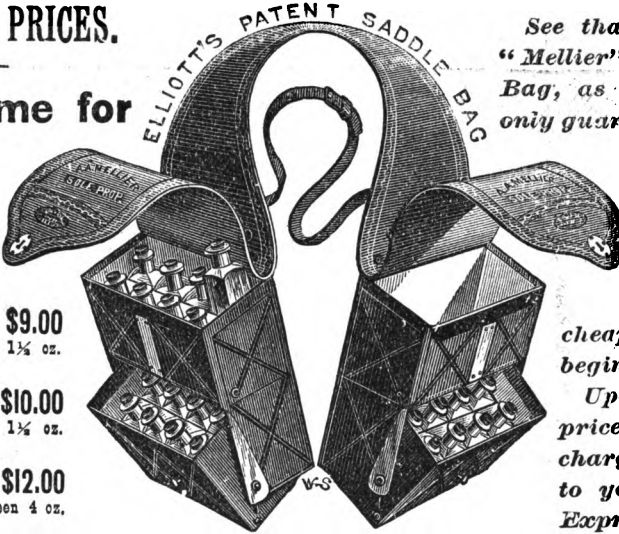
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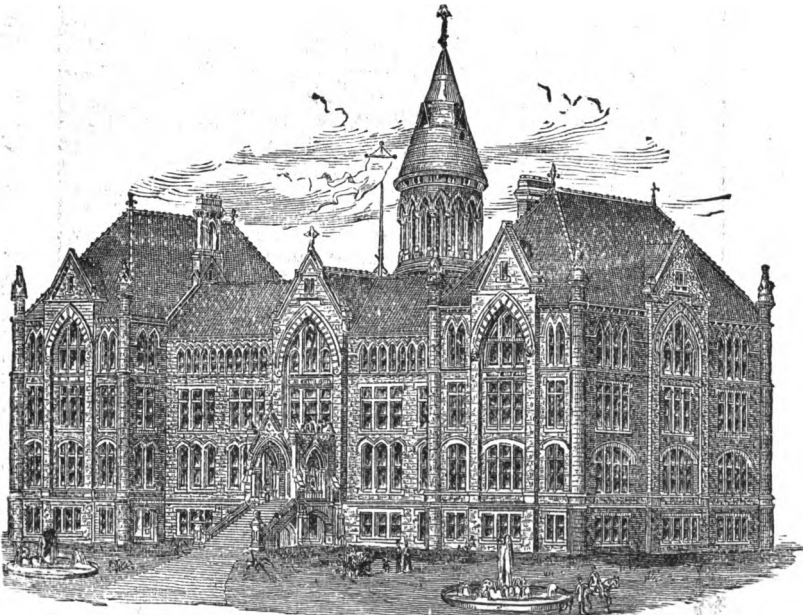
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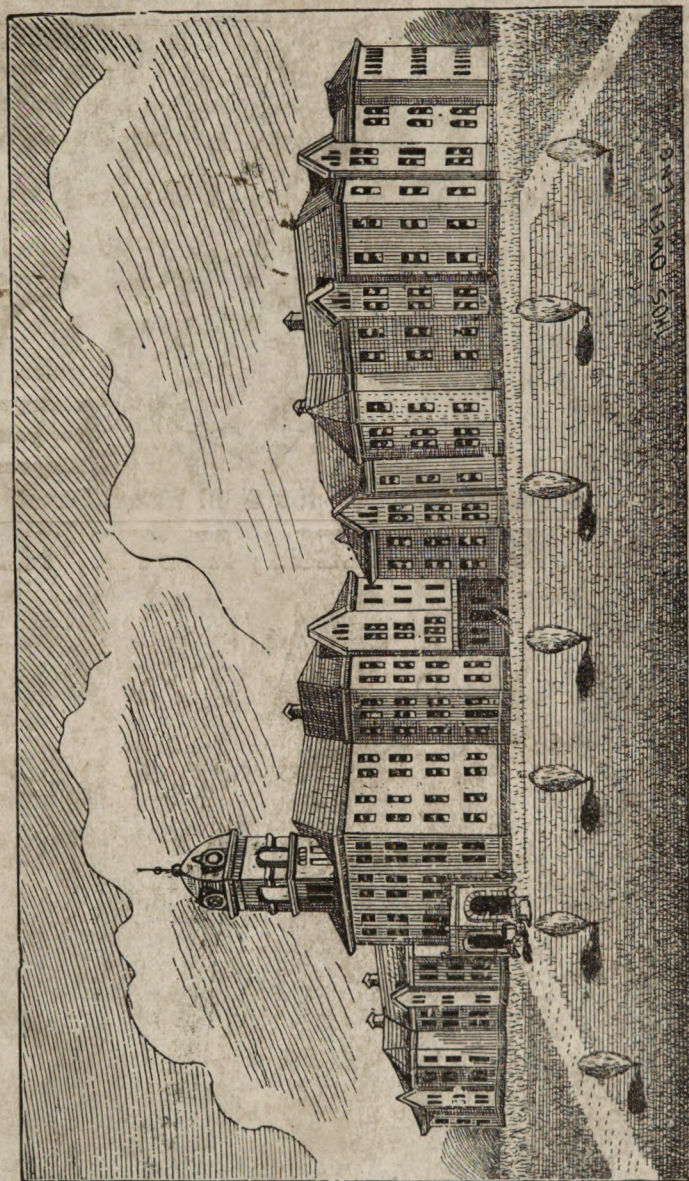


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